



Hazardous Building Materials Assessment

E0401—RCMP Detachment, 200 Highway 3,
Princeton BC

March 17, 2020

Prepared for:

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HAZARDOUS BUILDING MATERIALS ASSESSMENT

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Personnel conducting site work and documentation reviews for this project, as indicated below, have appropriate knowledge and experience in the management and control of asbestos hazards to be considered "qualified persons" by WorkSafeBC as it pertains to the provision of consultation in relation to asbestos in buildings.

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Executive Summary

Stantec Consulting Ltd. (Stantec) was commissioned by Public Services and Procurement Canada (PSPC) on behalf of the Royal Canadian Mounted Police (RCMP) to conduct a hazardous building materials assessment of E0401—RCMP Detachment, 200 Highway 3, Princeton BC (subject building).

The purpose of the assessment was to check for potential hazardous building materials that may require special management practices in accordance with applicable federal and provincial regulations, during continued operations and maintenance.

The work was carried out in accordance with the requirements of the current versions of the following:

- Canada Labour Code, Part II Canada Occupational Health and Safety Regulations (COHSR)
- British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97)
- WorkSafeBC 2017 publication "Safe Work Practices for Handling Asbestos" (BC Asbestos Guide)
- PSPC June 5, 2017 "Asbestos Management Standard" (AMS) and "Asbestos Management Directive" (AMD)

The hazardous building materials considered during this assessment included the following:

- Asbestos-containing materials (ACMs)
- Lead, including lead-containing paints (LCPs)
- Polychlorinated biphenyls (PCBs) in electrical equipment
- Mould and/or moisture-impacted building materials
- Mercury in electrical equipment
- Ozone-depleting substances (ODSs) in heating, ventilation and air conditioning (HVAC) equipment or fire suppression systems
- Silica in building materials

Based on Stantec's visual assessment and the laboratory analyses performed on the samples collected, as well as a review of the Previous Report, hazardous building materials were identified to be present.

A summary of our findings is presented in Table 1, below, complete with recommended actions for identified ACMs, in accordance with the provisions of the PSPC AMS (see Section 3.2 of this report for definitions). More thorough recommendations pertaining to the handling, removal, transportation and disposal of ACMs and other identified hazardous building materials are provided in the body of this report



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Table ES 1 Summary of Findings

Hazardous Building Material	Summary of Findings
Asbestos	<p>The following ACMs were identified through the Previous Report and were confirmed (or presumed) to remain through visual observations and/or sampling:</p> <ul style="list-style-type: none"> • Yellow pattern vinyl sheet flooring (presumed to remain present and in good condition as the second layer) in the second floor washroom • White duct tape on square and round ducting (only observed to be present in the crawlspace and potentially present in other concealed areas) • Drywall joint compound applied to walls and ceilings throughout <p>Identified ACMs were observed to be in good condition, and can be managed in place (ACTION 7—Routine Surveillance).</p> <p>In addition to the above, various presumed ACMs (PACMs) were identified the Previous Report. For some materials, it was unclear whether they were actually observed, or potentially present, as summarized below:</p> <ul style="list-style-type: none"> • Concrete floor leveling compound (not observed during the current assessment; potentially present as a concealed material beneath flooring, PACM if present) • Electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring (not observed during the current assessment; potentially present, PACM if present)
Lead	<p>Greater than 600 ppm lead was detected through laboratory analysis of chip samples of the following paints in the Previous Report. Notes regarding current observations, where applicable are in parentheses:</p> <ul style="list-style-type: none"> • Grey on wood trim in basement storage (observed by Stantec to remain and sampled as “light blue”, confirmed as LCP) <p>Greater than 600 ppm lead was actually or potentially detected through laboratory analysis of chip samples of the following additional paints:</p> <ul style="list-style-type: none"> • Light yellow coloured paint on metal doors and concrete walls of cells (potential LCP—further sampling may determine otherwise) <p>Lead may also be present in the following materials:</p> <ul style="list-style-type: none"> • Lead-acid batteries used in emergency lighting • Older electrical wiring materials and sheathing • Solder used on domestic water lines • Solder used in bell fittings for cast iron pipes and in electrical equipment • Vent and pipe flashings
Polychlorinated biphenyls (PCBs)	<p>The majority of fluorescent light fixtures throughout were observed to have high-efficiency light tubes. The ballasts within such fixtures are not suspected to contain PCBs. Fluorescent light fixtures of older vintage, if present in limited locations, may have PCB-containing ballasts.</p>
Mould	<p>No suspect mould or moisture staining was observed.</p>
Mercury	<p>Mercury vapour is present in the light tubes/bulbs in the approximately 60 fluorescent light fixtures observed throughout.</p>



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Table ES 1 Summary of Findings

Hazardous Building Material	Summary of Findings
Ozone-depleting substance (ODS)	The following equipment was identified by labels to be ODS-containing: <ul style="list-style-type: none">• Two exterior Lennox HVAC unit (8 lbs. 18oz. of R-22)
Silica	Silica is expected to be present in the following, which were observed in various locations throughout: <ul style="list-style-type: none">• Cement products such as:<ul style="list-style-type: none">– Concrete—foundations, floors, walls, blocks– Brick/masonry units and associated grout and mortar• Gypsum and associated wall/ceiling finish materials• Asphalt and asphalt products containing rock or stone (e.g., roof membrane).

The statements made in this Executive Summary text are subject to the same limitations included in this report and are to be read in conjunction with the remainder of this report.



Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ACM	asbestos-containing material
AIHA	American Industrial Hygiene Association
AMP	Asbestos Management Plan
BC	British Columbia
COHSR	Canada Occupational Health and Safety Regulations
ELLAP	Environmental Lead Laboratory Approval Program
EMSL	EMSL Canada Inc.
HVAC	heating, ventilation and air conditioning
LCP	lead-containing paint
NVLAP	National Voluntary Laboratory Accreditation Program
ODS	ozone-depleting substance
OEL	occupational exposure limit
PCB	polychlorinated biphenyl
PSPC	Public Services and Procurement Canada
RCMP	Royal Canadian Mounted Police
USEPA	United States Environmental Protection Agency



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1.0 INTRODUCTION

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- Mercury in electrical equipment
- Ozone-depleting substances (ODSs) in heating, ventilation and air conditioning (HVAC) equipment or fire suppression systems
- Silica in building materials

The site work was conducted by Ms. Kim Wiese on October 30, 2019.

1.1 UNDERSTANDING OF THE PROJECT

The following documentation related to hazardous building materials was provided subsequent to the assessment (further referred to herein as the Previous Report):

- Pinchin West Ltd. Report Number 35324AJ-01 entitled *Hazardous Building Materials Assessment, 200 Highway 3, Princeton, BC*, dated August 31, 2015, prepared for Brookfield GIS Workplace Solutions Inc



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During the planning stages of this project, PSPC was not made aware of the Previous Report. As such, PSPC originally requested Stantec's assessment on behalf of the RCMP as a measure of diligence in maintaining compliance with the requirements of the COHSR and BC Reg. 296/97 as they pertain to identifying hazards associated with hazardous building materials in the workplace. Subsequent to the completion of our field program, the Previous Report was provided to PSPC. As such, Stantec reviewed and considered the information within that document, and supplemented it with our current findings to prepare this report.

2.0 SCOPE

The scope of work for this assessment involved the following:

- Review of existing information, including site drawings, previous assessment and/or abatement documentation and discussions with site personnel, where available
- Visual assessment of readily accessible areas for the presence of suspected hazardous building materials
- Collection of representative bulk samples from building materials suspected to contain asbestos fibres
- Collection of paint chip samples for the determination of the lead content in paint finishes
- Submission of samples collected for laboratory analysis
- Evaluation and interpretation of field findings along with current and previous sample analytical results to develop conclusions and recommendations pertaining to hazardous building materials identified

2.1 LIMITATIONS

This report has been prepared for general information purposes associated with continued operations and maintenance of the subject building. This report does not necessarily constitute a pre-renovation or pre-demolition assessment, which can involve destructive removal of building finishes to observe concealed conditions. Prior to any renovation or demolition work within the subject building, this report should be reviewed by an appropriately qualified professional (with education and experience associated with the management of hazardous building materials) to determine what, if any, additional assessment is necessary.

In preparation of this report, Stantec used professional judgment based on experience. The work was conducted in accordance with generally accepted professional standards. Stantec relied on information gathered during the site investigation and laboratory analytical reports.

This report reflects the observations made within accessible and accessed areas of the subject building, and the results of analyses performed on specific materials sampled during the current and/or previous assessments. Analytical results reflect the sampled materials at the specific sample locations.



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This report has been prepared for the exclusive use of the Client for the purpose of assessing general conditions in the subject building. Any use that a third party makes of this report, or reliance on, or decisions to be made on it, are the responsibility of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

2.1.1 Physical and Sampling Limitations

Sampling was conducted pertaining only to suspected ACMs and suspected LCPs. The assessment for the presence of other hazardous building materials was visual in nature and was conducted pertaining to readily visible surfaces within accessible spaces only. Concealed spaces were inspected via existing access panels, where present. Interior and exterior finishes, solid ceilings, walls, flooring and structural elements were not removed to access concealed areas

Due to limitations on the agreed to scope of work for this project as well as physical limitations in accessing concealed areas and limitations associated with working in occupied/operational spaces, there are specific limitations to the information that can be provided regarding each hazardous building material considered in this assessment, as outlined below.

- Building materials that may contain asbestos but were not accessible for sampling include, but are not limited to the following:
 - Roofing materials
 - Attic insulation materials in locations more than one metre from the attic access hatch, potentially concealed beneath visible (fiberglass batt) insulation
 - Sub-grade materials (e.g., asbestos cement drainage pipe)
 - Flooring material concealed beneath carpeting and/or concealed beneath existing sub-floors
 - Insulation material present inside walls (e.g., suspected asbestos-containing vermiculite insulation inside concrete block and/or brick walls)
 - Drywall and/or wall plaster and associated finish materials concealed behind new and/or additional walls
 - Mechanical (e.g., piping and ducting) insulation within wall cavities, crawlspaces tunnels or other concealed spaces
 - Insulation materials inside fire-rated doors
 - Heating, ventilation and air conditioning (HVAC) units mechanical inner linings and/or insulation on the interior side of ducts
 - Heat protection materials inside mechanical installations and light fixtures.
- Samples of paint applications suspected to contain lead were collected from surfaces of major paint applications where visually different paint colours and/or types were identified. Although the surfaces where samples were collected may be covered with more than one coat of paint, the paint samples are described by the surface (visible) colour only. Attempts were made to represent all layers of paint in the samples collected. As analytical results are referenced to the surface paint colour only, the lead content of all painted surfaces similar to that represented by the surface paint colour were presumed to be the same, regardless of differing sub surface paints, if any.



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- Due to height restrictions and the risk of electrical shock in handling operational light fixtures, the ballasts present in the fixtures observed were not inspected for PCB labels or other PCB identifiers. Conclusions and recommendations regarding the presence of PCBs are based on limited observations in combination with information provided by building staff regarding lighting renovations (where requested by Stantec, based on visual observations) and are presented to provide guidance regarding the likelihood that PCB-containing equipment is or is not present. The exact extent and/or number of fluorescent lamp ballasts containing PCBs, if any, will not be commented on.
 - Although they may also be present in other items in limited amounts (e.g., plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets), PCBs are not expected to be present in those materials in concentrations that would necessitate the requirement for PCB-specific handling procedures, separate removal and/or disposal considerations for demolition. As such, these items were not considered in our assessment.
- Visual assessment for the presence of suspected visible mould and/or suitable conditions for mould growth (e.g., moist and/or water-stained building materials) was conducted. The conclusions made in this report provide description(s) of the potential source(s) of moisture that may have led to suitable conditions for mould growth, only in those cases where potential source(s) of moisture were identified. The conclusions provided herein will not necessarily identify all sources of moisture leading to suitable conditions for mould growth within the impacted area(s).
 - This assessment does not constitute a building envelope/building systems assessment, which would include an intrusive investigation to assess the internal condition, potential moisture sources, and expected remaining service life of the various components and systems comprising the envelope of a building.
- The potential presence of mercury or mercury-containing equipment in inaccessible areas or as internal parts of HVAC mechanisms or other equipment was not assessed.
 - Although limited amounts of mercury may be present in paints and adhesives, mercury is not expected to be present in those materials in concentrations that would necessitate the requirement for mercury-specific handling procedures, separate removal and/or disposal considerations for demolition. As such, these items were not considered in our assessment.
- Investigation was limited to a visual review in accessed areas of readily accessible building-related cooling and refrigeration equipment which could contain ODSs. Testing was not conducted. Equipment or materials that were not assessed but that may contain ODSs included, but were not limited to, portable equipment (including domestic-type refrigerators and water coolers, occupant-owned refrigeration equipment), flexible plastic foam or rigid insulation foam, solvents, aerosol spray propellants and portable fire extinguishing equipment.
- In general, the assessment for the presence of hazardous building materials was visual in nature and was conducted pertaining to readily visible surfaces within accessible accessed spaces only. Additional hazardous building materials are potentially present in inaccessible areas not assessed including, but not limited to: ceiling spaces, wall cavities and crawlspace areas not accessed, as well as buried materials.



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2.1.2 Areas Not Accessed

The following areas were not accessed, for the reasons indicated:

- Basement exhibit room (secure area—no access provided by tenant)

As such, limited comments, if any, will be provided regarding the presence, quantity or condition of hazardous building materials within the above-noted areas.

2.1.3 Information from Previous Reports

Stantec reviewed the Previous Report outlined herein for information purposes only. Although the information provided in the documentation outlined in Section 1.1 was reviewed and considered in the preparation of this report, Stantec did not rely on the documentation or the sample analytical results within.

3.0 HAZARDOUS BUILDING MATERIALS ASSESSMENT

Building information and the results of the assessment for each of the considered hazardous building materials are provided in the following sub-sections.

Background information and health effects information, as well as information regarding regulatory framework and relevant legislation with respect to hazardous building materials are provided in Appendix A.

Floor plans showing the locations of samples collected during this assessment as well as identified hazardous building materials (where practical) are provided in Appendix B.

3.1 FACILITY DESCRIPTION

The subject building is located at 200 Highway 3 in Princeton BC and consists of a three level building (basement and two main levels). The reported construction date of the building was 1964. The roof was reportedly replaced in 2010. The original construction time period is consistent with those dates when hazardous building materials were commonly used.

The typical structural components, mechanical components and building finishes associated with this building consist of the following:

- Foundation—concrete
- Exterior cladding—masonry block
- Structural—concrete walls, floors and beams and wood framing
- Mechanical—un-insulated pipes and systems
- Heating, ventilation and air conditioning (HVAC)—rooftop units with uninsulated (insulated, fiberglass wrapped, etc.) metal ducted supply, open air return



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- Interior walls—finished gypsum
- Interior ceilings—finished gypsum
- Interior flooring—combination of bare concrete, vinyl sheet flooring and laminate flooring
- Roofing material—flat roof membrane

3.2 ASBESTOS

A summary list of the bulk samples collected by Stantec, including a description of the material, sampling location and laboratory test results is provided in Appendix C. Copies of the Laboratory Certificates of Analysis for bulk samples analyzed are provided in Appendix D.

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of the analytical results of suspected ACMs collected through this assessment as well as those in the Previous Report, the materials presented in the table in Appendix E were identified as ACMs. The following information is included for each identified ACM:

- Type of material that contains asbestos
- Location/approximate extent of the ACM within the building
- Asbestos type and percentage identified
- Friability
- Condition
- Representative photographs, where available

Our assessment methodologies and findings are further summarized in the following sub-sections.

3.2.1 Methodology

Asbestos-containing materials are grouped into two classifications, friable and non-friable materials. Friable ACMs are those that can easily be crumbled or broken apart by mere hand pressure. When these materials break apart asbestos fibres are then released into the atmosphere. Non-friable ACMs are materials that by the nature of their manufacturing and/or construction do not readily allow the release of asbestos fibres. Some non-friable materials such as plaster, drywall joint compound and ceiling tiles that are considered to be non-friable in an undisturbed state can more readily release fibres when damaged or disturbed.

The presence of asbestos in federal workplaces and pertaining to federally regulated workers is governed by the COHSR. According to the COHSR, ACM means:

- Any article that is manufactured and contains 1% or more asbestos (by weight) at the time of manufacture, or any material that contains 1% or more asbestos when tested in accordance with accepted methods.



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The presence of asbestos in the workplace in British Columbia pertaining to provincially regulated workers is governed by BC Reg. 296/97. According to the current version of BC Reg. 296/97, ACM means:

- Any material containing at least 0.5% asbestos, or vermiculite insulation with any asbestos

As both federally regulated workers and provincially regulated workers (e.g., contractors) are expected to carry out work activities within the subject building, and as the provincial regulations have a more stringent definition of ACM, and generally include the requirements noted in the COHSR, this assessment was conducted to meet the requirements of BC Reg. 296/97.

Based on these criteria, a visual assessment of accessible areas was undertaken to check for the presence of suspected ACMs. Locations to collect discrete bulk samples of suspected ACMs were identified and samples of representative materials were then collected at these locations.

Multiple samples were collected from each “homogenous application” of observed suspected ACMs (materials suspected to contain asbestos that are uniform in material type, colour, texture application and estimated installation date) and submitted to EMSL Canada Inc. (EMSL) in Burnaby, BC for analysis of asbestos content using polarized light microscopy (PLM) with dispersion staining, in accordance with the United States Environmental Protection Agency (USEPA) 600/R-93/116 method.

The number of samples to be collected for each homogenous application of a suspected ACM was based on accepted occupational hygiene standards and protocols, on the recommendations provided in the 2017 WorkSafeBC publication *Safe Work Practices for Handling Asbestos (Asbestos Guide)*, and on the assessor’s experience and understanding of the consistency of that building material’s application.

EMSL’s analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

3.2.1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. Where masonry or brick walls were observed, destructive assessment (drilling) was not conducted to assess the cavity for the presence of vermiculite.

3.2.1.2 Sample Results Interpretation

When asbestos is detected in concentrations greater than 0.5% percent in one of the samples within a set that was collected to represent a “homogenous application” of a particular material (or detected in any concentration, in a set of samples collected for applications of vermiculite), the entire sample set, and the entire application of that material is then considered to be an ACM.



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In addition to the above, a “positive stop” option was used during the laboratory analysis of the building material samples submitted for asbestos analysis. The “positive stop” option is utilized by the laboratory when asbestos is detected at a concentration of greater than half of one percent in one of the samples within a set that was collected to represent a “homogenous application” of that material (or in any concentration, for vermiculite). At this point, further analysis of subsequent samples within the set is deemed to be unnecessary (as the entire set will be considered an ACM, per above), and the remainder of the samples within the set are not analyzed.

3.2.1.3 Asbestos Sampling Quality Assurance/Quality Control

Sampling activities pertaining to asbestos were conducted in accordance with Stantec’s safe work practices, which take into account current provincial and/or territorial regulations pertaining to such work (i.e., sampling procedures, required number of samples and laboratory analytical procedures).

Representative bulk samples were collected of accessible suspect ACMs in sufficient quantities for laboratory analysis. Suspect ACM samples were sealed in polyethylene zip-lock bags labeled with the sample number, suspect material description, and sample location. As part of sampling procedures, sampling tools were cleaned between sample collection events to avoid the potential for cross-contamination of samples.

All sample bags were compiled in order and placed into a single container accompanied with a chain of custody form outlining the project information, date, building location, number of samples, and sample description. Samples were submitted to the analytical laboratory in a sealed container via courier.

3.2.1.4 Assessment of Material Condition

A visual assessment of the condition and accessibility was also completed for each occurrence of suspect ACM. A description of the criteria used in evaluating the condition, accessibility and exposure risk of ACMs is provided below. The criteria are generally based on the June 5, 2017 Public Services and Procurement Canada “Asbestos Management Standard”, the provisions of the template RCMP Asbestos Management Plan (AMP) as communicated to Stantec, as well as industry standards of practice.

Friable ACMs other than Mechanical Insulation

In evaluating the condition of friable ACMs other than mechanical insulation (e.g., spray-applied as fireproofing, texture, decorative or acoustic finishes), the following criteria apply:

Good

- Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the Assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes un-encapsulated or un-painted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.



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Poor

- Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition will be recorded on the Assessor's assessment form.

Fair condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray-applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes, which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of building with ACM, regardless of the reported condition.

Mechanical Insulation

In evaluating the condition of mechanical insulation (on boilers, breaching, ductwork, piping, tanks, equipment, etc.) the following criteria are used:

Good

- Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

Fair

- Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

Poor

- Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired. The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.



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Non-Friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product, and evaluated per the above criteria.

Asbestos-Containing Material Debris *Debris from Friable ACM*

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as debris.

Debris from Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM that has become friable, is reported as debris.

3.2.1.5 Evaluation of Accessibility

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

Access (A)

Areas of the building within reach of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

Access (B)

Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.

Access (C) Exposed

Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.



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Access (C) Concealed

Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points.

Access (D)

Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc. where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of the condition and extent of ACM is limited or impossible, depending on the assessor's ability to visually examine the materials in Access D.

3.2.1.6 Action Matrix

Standard asbestos management protocols typically require the following responses:

- Immediate clean-up of debris that is likely to be disturbed; and,
- The removal, repair or enclosure of friable ACM in **POOR** or **FAIR** condition where continued deterioration will result in debris that is likely to be disturbed.

The following factors are typically considered in making site-specific recommendations for compliance with applicable regulations, and for the practical implementation of asbestos management:

1. ACM in **POOR** condition is not routinely repairable.
 - a. If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).
2. Mechanical insulation in **FAIR** condition will be repaired or removed based on the following general recommendations, applied on a case by case basis.
 - a. Repair ACM mechanical insulation found in **FAIR** condition in ACCESS (B) or ACCESS (C) EXPOSED areas.
 - b. Remove ACM mechanical insulation found in **FAIR** condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur.
 - c. Remove ACM mechanical insulation found in **FAIR** condition in ACCESS (A) to eliminate the potential for re-damaging ACM by all building users.
3. ACM in **GOOD** condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by ongoing occupant activity (accidental or intentional).
4. Non-friable or manufactured products are considered in the action matrix as follows:
 - a. Non-friable and manufactured products reported in **POOR** condition, or friable debris resulting from the deterioration of non-friable ACM, are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACM.
 - b. For non-friable or manufactured products reported in **GOOD** condition, Action 7 (surveillance) is recommended regardless of accessibility.
5. Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Management Program in that area.



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The Action Matrix provided below establishes the recommended asbestos control action. The ACTIONS are described in full following the matrix.

Table 1 Action Matrix

Access	Friable ACM Condition			Debris
	Good	Fair	Poor	
(A)	ACTION 5/7 ¹	ACTION 5/6 ²	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5 ³	ACTION 3	ACTION 1
(C) exposed	ACTION 7	ACTION 6	ACTION 4	ACTION 2
(C) concealed	ACTION 7	ACTION 7	ACTION 4	ACTION 2
(D)	ACTION 7	ACTION 7	ACTION 7	ACTION 7

NOTES:

- ¹ If material in ACCESS (A)/GOOD condition is not removed ACTION 7 is required
- ² If material in ACCESS (A)/FAIR condition is not removed ACTION 6 is required
- ³ Remove ACM in ACCESS (B)/FAIR condition if ACM is likely to be disturbed

3.2.1.7 Action Descriptions

ACTION 1 Immediate Clean-up of Debris that is Likely to be Disturbed

Restrict access that is likely to cause a disturbance of the **ACM DEBRIS** and contact an approved asbestos abatement contractor to clean up **ACM DEBRIS** immediately, utilizing correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Property Manager of this condition.

ACTION 2 Entry into Areas with ACM Debris—Moderate Risk Precautions

At locations where **ACM DEBRIS** can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to approved asbestos abatement contractor personnel. The precautions will be required until the **ACM DEBRIS** has been cleaned up, and the source of the **DEBRIS** has been stabilized or removed.

ACTION 3 ACM Removal Required for Compliance

Contact an approved asbestos abatement contractor to remove **ACM** for compliance with regulatory requirements, utilizing asbestos procedures appropriate to the scope of the removal work.

ACTION 4 Access into Areas Where ACM is Present and Likely to be Disturbed by Access—Moderate Risk Precautions

Assessment and/or contractor personnel will use Moderate Risk asbestos precautions when entry or access into an area is likely to disturb the **ACM**. ACTION 4 must be used until the **ACM** is removed (Use ACTION 1 or 2 if debris is present).



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ACTION 5 Proactive ACM Removal

Retain an approved asbestos abatement contractor to remove **ACM** in lieu of repair, or at locations where the presence of asbestos in **GOOD** condition is not desirable.

ACTION 6 ACM Repair

Retain an approved asbestos abatement contractor to repair **ACM** found in **FAIR** condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat **ACM** as material in **GOOD** condition and implement **ACTION 7**. If **ACM** is likely to be damaged or disturbed, during normal use of the area or room, implement **ACTION 5**.

ACTION 7 Routine Surveillance

Institute routine surveillance of the **ACM**. Trained workers or contractors must use appropriate asbestos precautions (Low Risk, Moderate Risk or High Risk) during disturbance of the remaining **ACM**.

3.2.2 Findings

A summary of the ACMs that were identified within the subject building previously are summarized below, complete with notes regarding current conditions of identified ACMs, where applicable:

- Drywall joint compound applied to walls and ceilings throughout
 - Confirmed to be ACM through sampling conducted as part of the current assessment and observed to be present in good condition throughout
- White duct paper wrap on piping
 - Observed during the current assessment on square and round ducting, not on “piping”
 - Confirmed to be ACM through sampling conducted as part of the current assessment
 - Appears to have been removed throughout the basement and a majority of the crawlspace
- Yellow pattern vinyl sheet flooring in the second floor washroom (second layer)
 - Not observed during the current assessment, presumed to remain present and in good condition as the second layer

3.2.2.1 Presumed Asbestos-Containing Materials

The Previous Report indicates various building materials as presumed ACMs (PACMs), however, it is not clear as to whether these materials were actually “observed” within the subject building by Pinchin, as many cannot be observed without removing or dismantling building components. The materials listed in the Previous Report as PACMs are provided below, along with additional information included in the parentheses, regarding Stantec’s observations:



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- Concrete floor leveling compound (not observed during the current assessment; potentially present as a concealed material beneath flooring, PACM if present)
- Electrical components or wiring within control centers, breakers, motors or lights, insulation on wiring (not observed during the current assessment; potentially present, PACM if present)
- Paints and coatings (suspect ACM paints and coating were not observed during the current assessment)

3.2.2.2 Non-Asbestos-Containing Materials

The bulk samples collected during this assessment for which no asbestos was detected through laboratory analysis can be seen in the table in Appendix C.

Refer to the documentation in Section 1.1 for materials that have been previously sampled and identified as non-asbestos-containing through sampling and laboratory analysis.

Materials Not Suspected to Contain Asbestos

Various materials within the subject building were observed and/or presumed to be present, which are not suspected to contain asbestos. Typical materials of this nature that were observed and are not considered suspected ACMs, include but are not limited to the following:

- Materials comprised of glass, such as:
 - Window panes
 - Fibreglass batt insulation in wall, floor or ceiling cavities, or used in other applications (potentially excluding attached paper backing)
 - Lights and lighting components
- Materials comprised of metal, such as:
 - Flashings on siding or roofs
 - Electrical wiring (excluding wrap) and conduit
 - Plumbing components
 - Components of doors, windows and associated trim
 - Structural components
 - Handrails
- Materials comprised of wood, such as:
 - Wall framing
 - Components of doors, windows and associated trim
 - Structural components
- Other materials generally not suspected to contain asbestos:
 - Gypsum board/"drywall" (excluding suspected ACM finishing compounds)
 - Poured concrete items such as foundations, floors, pads or structural beams (excluding suspected ACM finishing compounds)
 - Masonry units such as bricks or blocks (excluding mortar or potential loose-fill insulation)
 - Silicone-based clear caulking or sealants



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3.2.2.3 Potential for Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. The following observations were made regarding areas where vermiculite is potentially present:

- The Previous Report includes indication that destructive testing of block wall cavities was conducted in two locations, with no vermiculite was observed

Based on our observations and the information in the Previous Report, vermiculite is unlikely to be present in masonry block wall cavities.

3.2.3 Recommendations

Based on the visual assessment and results of laboratory analyses, Stantec recommends the following with regards to meeting the requirements of the COHSR, BC Reg. 296/97 and the provisions of the template RCMP Asbestos Management Plan (AMP) as communicated to Stantec:

- Due to the confirmed presence of asbestos within the subject building, and in accordance with the requirements of applicable provincial and federal regulations and guidelines as outlined herein, the RCMP AMP must be implemented for the subject building. Implementation of the RCMP AMP would constitute following ACTION 7 as outlined in this document.
- Identified ACMs in good condition can be managed in place (ACTION 7—Routine Surveillance), in accordance with the provisions of the developed AMP.
- Suspected ACMs deemed visually similar to the ACMs identified in this report should be considered asbestos-containing and handled as such, unless proven otherwise, through analytical testing.
- Prior to demolition activities that would disturb them, undertake testing of PACMs that may be impacted to determine their asbestos content. Confirmed ACMs should be handled accordingly.
- ACMs that may be impacted during renovation and/or demolition activities should be removed by appropriately trained personnel (e.g., asbestos abatement contractor personnel), in accordance with the requirements of BC Reg. 296/97 and the Asbestos Guide, and prior to the initiation of project work that will disturb them.
- Should a material suspected to contain asbestos fibres become uncovered during renovation or other activities, all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if asbestos fibres are present. Confirmed ACMs should be handled in accordance with applicable guidelines and regulations.
- Asbestos-containing cement pipe may be present below ground—caution should be used at any time when excavation is required.
- If masonry block walls are to be impacted by renovation and/or demolition work, and these walls have not been checked for the presence of vermiculite insulation, intrusive assessments for vermiculite should be undertaken prior to renovation/or demolition work. Although presence is unlikely, if vermiculite insulation is identified to be present, this material should be treated as an ACM until testing can show otherwise.



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- Ensure asbestos containing waste is handled, stored, transported and disposed of in accordance with the requirements of the Federal Transportation of Dangerous Goods Regulation and the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).
- This report should be included in the AMP developed for the subject building.

3.3 LEAD

A summary list of the samples collected including a description of the samples, sampling locations and laboratory analytical results is provided in Appendix F. Copies of the Laboratory Certificates of Analysis for paint chip samples analyzed are included in Appendix G.

Based on our observations and interpretations of suspected LCP sample analytical results, the paints presented in the table in Appendix H were identified as LCPs.

The following information is included for each identified LCP:

- Paint colour
- Substrate to which paint is applied
- Location/approximate extent of the LCP within the building
- Lead content of paint
- Condition
- Representative photographs, where available

Our assessment methodologies and findings are further summarized in the following sub-sections.

3.3.1 Methodology

A visual assessment of accessible areas was undertaken in order to check for the presence of materials that may contain lead. These materials included paint applications, wiring and plumbing, batteries, etc.

3.3.1.1 Lead in Paint

With respect to potential lead exposures associated with disturbance to surfaces coated with lead-containing products, the 2011 WorkSafeBC manual titled *Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry*, indicates the following:

- Improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the exposure limit
 - The exposure limit indicated in both the COHSR and BC Reg. 296/97 is 0.05 mg/m³.
 - The potential for exposure exceeding half of the occupational exposure limit would be the trigger for implementation of an exposure control plan.
- Lead concentrations as low as 90 mg/kg may present a risk to pregnant women and children
 - Any risk assessment should include for the presence of high risk individuals within the workplace



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In addition to the above, the 2017 WorkSafeBC publication *Safe Work Practices for Handling Lead* (Lead Guideline) indicates the following:

Unlike for asbestos-containing material, WorkSafeBC does not numerically define what would be considered a lead-containing paint or coating. All suspected paints or coatings should be tested for lead because, depending on the nature of the work, even a small amount could pose a risk to workers. In order to determine which controls and personal protective equipment would be required for a particular job, a qualified person must consider this information as part of the risk assessment.

When reviewing the above, “high risk” individuals are not expected to be present in the workplace associated with this building during building material alteration activities that would create significant disturbance to paint with such individuals present. As such, paints containing 600 ppm lead or more will be considered “lead-containing” for the purpose of this report, such that appropriate risk assessments can be completed for planning. However, information regarding the lead content of all paints tested is provided herein, for reference and risk assessment should the consideration of high risk individuals be necessary, based on the requirements of a particular situation.

Based on the above, samples of potential LCPs were collected from major paint applications, in sufficient quantity to conduct analysis for total lead content. The sampling of paint applications involved the collection of paint chip samples of paint layers to the substrate, where possible. A minimum volume of 5 cc or a half teaspoon of paint chips was typically collected. Wherever necessary and possible, paint was separated from any backing material such as paper, concrete or wood and placed in a sealed, clearly labelled plastic bag.

Samples collected were submitted to EMSL in Mississauga, Ontario for analysis of total lead content using EPA Method SW 846 3050B*/7000B. EMSL’s analytical laboratory is also accredited by the AIHA Environmental Lead Laboratory Approval Program (ELLAP).

Welding, Burning or Torch Cutting

Although a concentration of 600 ppm lead has been used to define paint coatings as LCPs, it should be noted that this is related to painted surfaces and the determination of appropriate provisions to protect occupants and employees from exposure to elevated concentrations of lead during typical operations and maintenance or simple renovation. This does not include painted metal surfaces that are to be welded, burned or torch-cut.

Using an arc welder or oxyacetylene torch on steel that is coated with lead-containing paint can create hazardous lead fumes and is prohibited by section 12.115 of BC Reg. 296/97.

Regulatory excerpt: **12.115 Coatings on metals**

A coating on metal which could emit harmful contaminants (such as lead, chromium, organic materials, or toxic combustion products) must be removed from the base metal, whenever practicable, before welding or cutting begins.



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In addition, the following information is provided in the Lead Guideline:

- Welding or torch cutting of paints or coatings on metal can create very high concentrations of airborne lead fumes. Torch cutting structural steel, coated with paint containing as little as 130 mg/kg (equivalent to ppm) lead, can release airborne levels of lead as high as 0.8 mg/m³ (16 times the exposure limit).

Given this information and that the analytical detection limit for lead paint analysis is approximately 80–90 ppm (not significantly different than 130 ppm, which, per above, may release airborne lead levels 16 times the exposure limit), any paint coating on a metal surface to be welded, burned or torch-cut must be removed prior to that action being undertaken, unless a project-specific or tasks-specific risk assessment and safe work practices are developed by a qualified person.

3.3.1.2 Assessment of Paint Condition

The criteria for condition evaluation pertaining to LCPs described herein are generally based on the United States Housing and Urban Development (HUD) 2012 *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

When evaluating the condition of LCPs, an attempt should be made to determine whether the deterioration is due to a moisture problem or some other existing building deficiency.

“**Poor**” surfaces are considered to be a hazard and should be corrected. “**Fair**” surfaces should be repaired but are not yet considered to be a hazard; if not repaired, they should be monitored frequently. “**Good/intact**” surfaces should be monitored to ensure that they remain in a nonhazardous condition.

In addition, the presence of paint debris must be considered in evaluating condition. Given the variety of paint uses, there are many applications that can have a tendency for the paint to “wear” from the surface slowly, over an extended period of time. Conditions where paint has worn from a surface are worth noting for maintenance discussions (i.e., related to re-coating the surface should, for example, the coating provide weather protection), however, in the absence of loose paint chip debris/dust, such conditions would not represent a potential exposure situation related to lead.

The condition evaluation criteria for LCPs are summarized in Table 2, below.



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Table 2 Lead-Containing Paint Condition Categories

Type of Building Component ¹	Total Area of Deteriorated Paint on Each Component		
	Good/Intact	Fair ²	Poor ³
Exterior components with large surface areas.	Entire surface is intact.	Less than or equal to 10 square feet	More than 10 square feet
Interior components with large surface areas (walls, ceilings, floors, doors).	Entire surface is intact.	Less than or equal to 2 square feet	More than 2 square feet
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim).	Entire surface is intact.	Less than or equal to 10% of the total surface area of the component.	More than 10% of the total surface area of the component
<p>NOTES:</p> <p>¹ Building component in this table refers to each individual component or side of building, not the combined surface area of all similar components in a room (e.g., a wall with 1 square foot of deteriorated paint is in “fair” condition, even if the other three walls in a room are intact).</p> <p>² Surfaces in “fair” condition should be repaired and/or monitored but are not considered to be “lead-containing paint hazards”.</p> <p>³ Surfaces in “poor” condition are considered to be “lead-containing paint hazards” and should be addressed through abatement or interim controls.</p>			

3.3.2 Findings

Lead is expected to be present in the following within the subject building:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used on domestic water lines
- Solder used in bell fittings for cast iron pipes and in electrical equipment
- Vent and pipe flashings

3.3.2.1 Lead in Paint

Greater than 600 ppm lead was detected through laboratory analysis of chip samples of the following paints in the Previous Report. Notes regarding current observations, where applicable are in parentheses:

- Grey on wood trim in the basement storage (observed by Stantec to remain and sampled as “light blue”)

Greater than 600 ppm lead was actually or potentially detected through laboratory analysis of chip samples of the following additional paints:

- Light yellow coloured paint on metal doors and concrete walls of cells (insufficient sample to reach reporting limit, further sampling may determine that this is not in fact an LCP)

Additional information regarding extent and current condition of identified LCPs, including photographs (where available) is provided in Appendix H.



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3.3.3 Recommendations

Lead-containing materials, including paints, can be managed in place, where in good condition.

When paints or other lead-containing equipment/materials within the subject building are to be disturbed and/or removed, ensure compliance with the following:

- Exposure protection requirements of the COHSR and BC Reg. 296/97, including the provisions of the Lead Guideline
- Transportation and disposal requirements of BC Reg. 63/88
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the COHSR and BC Reg. 296/97 eight-hour occupational exposure limit (OEL) of 0.05 mg/m³ during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust. This can be achieved by:

- Providing workers with protective clothing and personal protective equipment or devices as necessary to protect them against the hazards to which the worker may be exposed
- Providing workers with adequate training in the care and use of clothing, equipment or device before wearing or using such items
- Wetting the surface of the materials to prevent dust emissions
- Providing workers with washing facilities with clean water, soap and individual towels to properly wash prior to exiting the work area

To avoid the inhalation of lead, it is essential to have the following control methods in place:

- Engineering controls
- Work practices and hygiene practices
- Respirators and personal protective equipment
- Training

The work tasks required and the ways in which lead-containing materials (including paints containing any concentration of lead) will be impacted will determine the appropriate respirators, measures and procedures that should be followed to protect workers from lead exposure.

3.3.3.1 Welding, Burning or Torch Cutting

Any paint coating on a metal surface to be welded, burned or torch-cut must be removed prior to that action being undertaken, unless project-specific or tasks-specific risk assessments and safe work practices are developed by a qualified person. Development of such risk assessments and work practices will involve consideration of information including, but not limited to, the following:



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- Composition of the material to be disturbed
- Lead content of the paint coating
- Methods and tools to be used, including exhaust ventilation
- Duration of the work and/or work shift
- Training of the personnel conducting the task
- Respiratory protection program in effect

3.4 POLYCHLORINATED BIPHENYLS

3.4.1 Methodology

A visual review and/or a review of estimated/reported construction dates was completed to assess the potential presence of PCBs in electrical equipment. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic systems, compressors, switchgear and capacitors.

No sampling of dielectric fluids was undertaken as part of this assessment.

3.4.2 Findings

The majority of fluorescent light fixtures throughout were observed to have high-efficiency light tubes. The ballasts within such fixtures are not suspected to contain PCBs. Fluorescent light fixtures of older vintage, if present in limited locations, may have PCB-containing ballasts.

3.4.3 Recommendations

Fluorescent lamp ballasts that may contain PCBs can be managed in place, where these items are operating and in good condition. No further action is currently required until such time that renovation or demolition activities are to be conducted, or until 2025, when PCB-containing ballasts will require removal and disposal.

When decommissioned, verify the PCB content of fluorescent lamp ballasts as per the Environment Canada publication *Identification of Lamp Ballasts Containing PCBs*, 1991.

Should a material suspected to contain PCBs become uncovered during demolition activities (i.e., dielectric fluids, hydraulic fluids), all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if PCBs are present.

PCB-containing items identified for removal and disposal should be handled, transported, stored and disposed of in accordance with the following:

- Transportation and disposal requirements of BC Reg. 63/88
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation
- Federal PCB Regulations (SOR/2008-273)



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3.5 MOULD

3.5.1 Methodology

The presence of suspect visible mould was assessed through visual observations. Material observed with dark-coloured staining and/or a textured and discoloured appearance is described as “suspected mould”. Mould identified visually is defined as “suspected mould” unless it is confirmed as mould by laboratory analysis.

The scope of work and procedures utilized for the visual assessment were based on the recommendations for such provided in the documents listed below:

- Standard Construction Document CCA 82 *Mould Guidelines for the Canadian Construction Industry*, Canadian Construction Association, 2004 (referred to as CCA 82)
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environment*, New York City Department of Health and Mental Hygiene, November 2008 (referred to as the NYC Guidelines)
- *Fungal Contamination in Public Buildings: Health Effects and Investigation Methods*, Federal-Provincial Committee on Environmental and Occupational Health, 2004 (referred to as the Health Canada Guide)
- *Indoor Air Quality in Office Buildings: A Technical Guide*, Report of the Federal-Provincial Advisory Committee on Environmental and Occupational Health, 1995 (referred to as the IAQ Guide)
- *Bioaerosols: Assessment and Control*, American Conference of Governmental Industrial Hygienists (ACGIH), 1999 (referred to as the ACGIH Report)
- *Field Guide for the Determination of Biological Contaminants in Environmental Samples*, AIHA, Second Edition 2005

3.5.2 Findings

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

3.5.3 Recommendations

As no mould and/or moisture-impacted building materials were observed within the subject building during the assessment, no recommendations have been provided.

3.6 MERCURY

3.6.1 Methodology

An assessment for equipment that is likely to contain mercury (such as thermostats, thermometers and fluorescent light tubes) was completed visually. Information on the type of equipment (i.e., gauges, switches, batteries, thermometers, etc.), model and serial numbers and quantities was recorded, where such information was available.



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3.6.2 Findings

Mercury vapour is present in the light tubes within the approximately 60 fluorescent light fixtures observed throughout.

3.6.3 Recommendations

Identified mercury-containing items can be managed in place, therefore no further action is recommended at this time. Mercury vapour within light fixtures poses no risk to workers or occupants provided the mercury containers remain intact and undisturbed.

Complete removal of mercury-containing equipment is required prior to demolition activities that may disturb the equipment. When mercury-containing items (e.g., fluorescent light bulbs/tubes) are removed, ensure all mercury waste is handled, stored transported and disposed of in accordance with the requirements the following:

- Transportation and disposal requirements of BC Reg. 63/88
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation

Precautions should be taken if workers may potentially be exposed to mercury or mercury vapours to ensure that workers exposure levels do not exceed the occupational exposure limit of 0.025 mg/m³ as per the COHSR and BC Reg. 296/97. This can be achieved by providing respiratory and skin protection applicable to the hazard and task to be completed.

3.7 OZONE DEPLETING SUBSTANCES

3.7.1 Methodology

An assessment for equipment or systems likely to contain ODSs (such as refrigeration/cooling equipment or fire suppression systems) was completed visually. Information on the type of equipment, manufacturer and type and quantity of refrigerants was recorded, where available.

3.7.2 Findings

A summary of observations pertaining to building related equipment confirmed to be ODS-containing is presented in Table 3, below.

Table 3 Summary of Observations—ODS-Containing Equipment
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Equipment	Location	Refrigerant
Lennox HVAC Unit (2 units)	Exterior, west side of building	R-22 (8 lbs.18 oz. total)

The locations of the confirmed ODS-containing equipment are indicated in the floor plan drawings provided in Appendix B.



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3.7.3 Recommendations

ODS-containing equipment can be managed in place and must be serviced by licensed refrigeration technicians (as defined in SOR/2003-289 and associated amendments).

When refrigeration equipment that is suspected or confirmed to be ODS-containing is decommissioned, it should be emptied and inspected by licensed refrigeration technicians, as defined in the Federal Halocarbon Regulations (SOR/2003-289 and associated amendments).

If ODS-containing equipment is to be removed during renovation/demolition activities, ODSs must be handled, recycled, stored, transported and/or disposed of in accordance with the requirements of the following:

- British Columbia *Waste Management Act—Ozone Depleting Substances and Other Halocarbons Regulation* (BC Reg. 387/99)
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation
- SOR/2003-289 and associated amendment.

3.8 SILICA

3.8.1 Methodology

An assessment for the presence of silica was conducted visually. The presence of typical silica-containing building materials such as concrete, masonry, stone, terrazzo, refractory brick, gypsum, ceramic tile, ceiling tile and other items, was noted.

3.8.2 Findings

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete—foundations, floors, walls, blocks
 - Brick/masonry units and associated grout and mortar
- Gypsum and associated wall/ceiling finish materials
- Asphalt and asphalt products containing rock or stone (e.g., roof membrane).

3.8.3 Recommendations

Silica-containing materials can be managed in place; therefore, no further action is recommended at this time.



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When silica-containing materials within the subject building are to be disturbed and/or removed (e.g., coring through concrete slabs, demolition of masonry or concrete units), ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by the COHSR and BC Reg. 296/97 (cristobalite and quartz—each 0.025 mg/m³). This would include, but not be limited to, the following:

- Providing workers with respiratory protection
- Wetting the surface of the materials, and use of water or dust suppressing agents to prevent dust emissions
- Providing workers with facilities to properly wash prior to exiting the work area

4.0 CLOSURE

This report has been prepared for the sole benefit of the PSPC on behalf of the RCMP. Any use which a third party makes of this report, or any reliance on decisions based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professionals and technical staff in accordance with generally accepted engineering, scientific and occupational health and safety practices current at the time the work was performed. Conclusions presented in this report should not be construed as legal advice.

The conclusions presented in this report represent the best technical judgment of Stantec Consulting Ltd. based on the data obtained from the work. The conclusions are based on the site conditions encountered by Stantec Consulting Ltd. at the time the work was performed at the specific assessment and/or sampling locations, and can only be extrapolated to an undefined limited area around these locations. The extent of the limited area depends on building construction and conditions, weather, building usage and other factors. Due to the nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental or health and safety liabilities.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

We trust that the above is satisfactory for your purposes at this time. Should you have any questions or concerns, or require additional information, please do not hesitate to contact the Stantec Project Manager at your convenience.

Regards,

Stantec Consulting Ltd.



APPENDIX A

**Hazardous Building Materials Background Information,
Health Effects Information and Regulatory Framework**

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix A Hazardous Building Materials Background Information, Health Effects Information and Regulatory Framework
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Appendix A HAZARDOUS BUILDING MATERIALS BACKGROUND INFORMATION, HEALTH EFFECTS INFORMATION AND REGULATORY FRAMEWORK

A.1 ASBESTOS

Asbestos is a naturally occurring form of fibrous silicate that is durable and flexible; has high thermal and tensile strength; is resistant to heat, chemical corrosion and friction; does not conduct electricity; and insulates well against condensation, heat and noise. Due to these properties, asbestos was used in over 3,000 commercial products, and it is estimated that approximately 70% of the asbestos that was used in North America was used in building materials.

In buildings, and among many other potential asbestos-containing materials, asbestos is typically found in plaster, mechanical insulation, gaskets, thermal insulation on pipes, refractory material, roofing felts, floor tiles, ceiling tiles and parging, heat resistant panels, incandescent light fixture reflector plates, and any other material requiring a high degree of durability or thermal resistance.

Asbestos-containing materials are grouped into two classifications, friable and non-friable materials. Friable ACMs are those that can easily be crumbled or broken apart by mere hand pressure. When these materials break apart asbestos fibres are then released into the atmosphere. Non-friable ACMs or “manufactured products” are materials that by the nature of their manufacturing/construction do not readily allow the release of asbestos fibres. These materials should not be cut or shaped with power tools, since this procedure may allow for the release of the asbestos fibres. Some materials or “manufactured products”, such as plaster, drywall and ceiling tiles that are considered to be non-friable in an undisturbed state can become friable when damaged or disturbed.

The common use of friable (breakable by hand) asbestos-containing materials (ACMs) in construction ceased voluntarily in the mid-1970s; however, the spray application of asbestos-containing fireproofing was not prohibited until 1986. A material known as vermiculite, which was commonly used for insulation within attics, floor spaces or within masonry block wall systems and may be contaminated with asbestos due to its production processes, was used into the mid-1990s. In addition, asbestos cement products and roofing products (e.g., sealants) currently used in the construction of buildings may still contain asbestos.



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A.1.1 Health Effects

Undisturbed asbestos within building materials poses no health risks. Asbestos poses a risk when building materials containing asbestos are impacted, or disturbed, thereby releasing the asbestos fibres into the air.

Asbestos-related diseases are caused when suspended airborne asbestos fibres are inhaled and the fibres settle into various regions of the lungs and remain for extended periods. Once embedded in the lungs the asbestos fibres cause scarring within the lung tissue, ultimately leading to impaired lung function (asbestosis) and/or various cancers (lung cancer; mesothelioma). These asbestos-related diseases are irreversible and fatal. The risk of lung-related cancers is increased in individuals who smoke.

These asbestos-related diseases most often occur in individuals who have been exposed to high concentrations of airborne asbestos over a long period of time, though mesothelioma has been found in individuals with short-term exposures. Symptoms or the development of these asbestos-related diseases usually occur 10 to 25 years after exposure.

A.1.2 Regulatory Framework

Asbestos is included in the Canada Labour Code, Part II Canada Occupational Health and Safety Regulations (COHSR) and British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97). Included in both regulatory instruments are provisions for the general duties of employers, requirements for health assessments, training and project notification. There are also sections that will also apply to abatement projects, depending on the work procedures and specific work site hazards.

The COHSR and BC Reg. 296/97 also established an 8-hour occupational exposure limit (OEL) for asbestos (all forms) to be 0.1 fibre/cubic centimetre.

The 2017 WorkSafeBC publication *Safe Work Practices for Handling Asbestos* (Asbestos Guide) is used by Occupational Health and Safety officers as a guide when reviewing abatement work practices and employer codes of practice, and generally meets the requirements of the COHSR.

The Asbestos Guide also provides significant additional background information pertaining to asbestos, along with details on health effects and other applicable legislation within the province of British Columbia (e.g., the federal *Hazardous Products Act*, the BC Building Code and waste disposal regulations).

According to the COHSR, ACM means:

- Any article that is manufactured and contains 1% or more asbestos (by weight) at the time of manufacture, or any material that contains 1% or more asbestos when tested in accordance with accepted methods.

According to the current version of BC Reg. 296/97, asbestos-containing material (ACM) means any material containing at least 0.5% asbestos, or vermiculite insulation with any asbestos.



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Disposal of asbestos waste is governed by the British Columbia Hazardous Waste Regulation (BC Reg. 63/88). The Federal Transportation of Dangerous Goods Regulation and BC Reg. 63/88 set out the requirements for the proper transport of asbestos waste in British Columbia. In general, and for transportation and disposal, the waste must be placed in a double sealed container, properly labeled, free of cuts, tears or punctures and disposed of at a licensed waste station which has been properly notified of the presence of asbestos waste.

A.2 LEAD

Lead may be used in its pure metallic form or combined chemically with other elements to form lead compounds. Metallic lead is used to make products such as electric storage batteries, ammunition, lead solder, radiation shields, pipes, and sheaths for electric cables. Metallic lead is sometimes combined with other metals such as copper, tin and antimony as lead alloys for use in the manufacture of a variety of metal products.

Organic lead compounds contain a lead atom covalently bonded to carbon. Common examples of organic lead compounds include lead “soaps” such as lead oleates, high pressure lubricants, and anti-knock agents in gasoline.

Inorganic lead compounds (or lead salts) result when lead is combined with an element other than carbon. Examples are lead oxide, lead chromate, lead carbonate and lead nitrate. Inorganic lead compounds may occur as solids or in solutions, and are used in insecticides, pigments, paints, frits, glasses, plastics, and rubber compounds.

Lead is commonly found in buildings in items such as the solder used on copper domestic pipes; the caulking on bell fittings of cast iron drainage pipes; electrical equipment/wiring; batteries (e.g., emergency exit signage batteries); lead sheeting (e.g., x-ray rooms); vent and pipe flashings; and paints and ceramic tile glazes.

A.2.1 Health Effects

Elemental lead and inorganic lead compounds are absorbed through ingestion or inhalation and can incorporate into the bone marrow, nerve tissue, brain, and kidneys. In children, symptoms of lead poisoning can include headaches, irritability, abdominal pain, vomiting, anemia, weight loss, poor attention span, noticeable learning difficulty, slowed speech development, and hyperactivity. In adults, symptoms of lead poisoning can include pain, numbness or tingling of the extremities, muscular weakness, headache, abdominal pain, memory loss, unsteady gait, pale skin, weight loss, vomiting, irritability, and anemia. Although adults are susceptible to the toxic effects of lead, children are at high risk due to the nature of a child's activities that involve the introduction of non-food items into their bodies.

Excessive airborne lead and surface contamination can be transferred to employees' hands and may result in lead ingestion. Therefore, work practices intended to minimize surface lead concentrations, such as frequent cleaning of work surfaces should be included in an overall lead exposure control plan.



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A.2.2 Regulatory Framework

In the past, the United States Department of Housing and Urban Development (HUD) set a criteria of lead-based paint as 0.5% lead (by weight) or 5,000 parts per million (ppm) for evaluating whether lead is a hazard in a residential setting.

In Canada, the Surface Coating Materials Regulations (SOR/2005-109) under the federal *Hazardous Products Act* provides a concentration of lead that must not be exceeded in surface coatings that are presently sold in this country. This value has recently been reduced from 600 ppm (2005) to 90 ppm (2010). However, it is important to note that this regulation does not comment on the potential occupational exposure if the material is disturbed.

Under the COHSR and BC Reg. 296/97, a regulatory limit has been established for occupational exposure to airborne lead that may be present in a workplace. The OEL for airborne lead dust or fumes per both regulatory instruments should not exceed the TWA value of 0.05 milligram per cubic metre of air (mg/m³). The OEL represents the time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse health effects.

With respect to potential lead exposures associated with disturbance to surfaces coated with lead-containing products, the 2011 WorkSafeBC manual titled *Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry*, indicates the following:

- Improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the exposure limit
 - This potential for exposure exceeding half of the occupational exposure limit would be the trigger for implementation of an exposure control plan.
- Lead concentrations as low as 90 mg/kg may present a risk to pregnant women and children
 - Any risk assessment should include for the presence of high risk individuals within the workplace.

In addition to the above, the 2017 WorkSafeBC publication *Safe Work Practices for Handling Lead* (Lead Guideline) indicates the following:

Unlike for asbestos-containing material, WorkSafeBC does not numerically define what would be considered a lead-containing paint or coating. All suspected paints or coatings should be tested for lead because, depending on the nature of the work, even a small amount could pose a risk to workers. In order to determine which controls and personal protective equipment would be required for a particular job, a qualified person must consider this information as part of the risk assessment.

Work procedures that can be used to assist in protecting workers and adjacent work areas from exposure to lead during disturbance activities can also be found in this document.



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According to the British Columbia Hazardous Waste Regulation (BC Reg. 63/88), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0 milligrams per litre (mg/L) lead.

The Federal Transportation of Dangerous Goods Regulation and BC Reg. 63/88 set out the requirements for the proper transport of lead waste in British Columbia.

A.3 POLYCHLORINATED BIPHENYLS (PCBS)

PCBs are man-made toxic chemicals whose physical and chemical properties produce the following attributes: fire resistance, low electrical conductivity, high resistance to thermal breakdown, high chemical stability and resistance to oxidants and other chemical.

PCBs were used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. In fluorescent fixtures, PCBs were usually found within the small capacitors inside the ballast that controls the lamp. The Federal Chlorobiphenyls Regulation, SOR/91-152, prohibited the use of PCBs in electrical equipment manufactured after July 1, 1980. Stocks of items such as ballasts containing PCBs may have been used into the early or mid-1980s.

A.3.1 Health Effects

PCBs are insoluble in water; however, they readily dissolve in fats and other organic compounds. It is these attributes and fat-solubility that allow PCBs to persist in the environment and bio-accumulate in humans and animals. Exposure to PCBs can affect the immune system, reproductive system, nervous system and endocrine system. In humans, PCBs are potentially cancer-causing.

A.3.2 Regulatory Framework

As of September 5, 2008, under subsection 93(1) of the Canadian *Environmental Protection Act*, (CEPA), Federal PCB regulations were published by the Canada Gazette Part II (SOR/2008-273) that imposed specific deadlines for the elimination of all PCBs in concentrations at or above 50 milligrams/kilogram (mg/kg). This regulation required the elimination of all PCBs and PCB-containing materials currently in-use and in storage and limited the period of time PCB materials could be stored before being eliminated. Other aspects of the regulation govern the labelling and reporting of stored PCB materials and equipment as well as improved practices for the management of PCBs that remain in use (i.e., those with PCB concentrations less than 50 mg/kg) until their eventual elimination.

Under SOR/2008-273, the following end-of-use dates were established:

- December 31, 2009
 - Equipment containing PCBs in a concentration of 500 mg/kg or more
 - Equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg when located in sensitive locations (i.e., drinking-water treatment plant, food or feed processing plant, child care facility, preschool, primary or secondary school, hospital, or senior citizen care facility or the property on which the plant or facility is located, within 100 m of it)



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- December 31, 2014
 - Certain specified equipment not replaced by the 2009 deadline due to technical constraints for engineered-to-order equipment or if the facility is scheduled for permanent closure before 2014
- December 31, 2025
 - Equipment containing PCBs in a concentration of at least 50 mg/kg but less than 500 mg/kg when located in non-sensitive locations

In addition to the above, a maximum storage period of one year is allowed for PCBs and products that contain PCBs at each of the following non-sensitive locations:

- Owner's PCB storage site
- PCB storage site of an authorized facility for decontamination or of an authorized transfer site
- PCB storage site of an authorized destruction facility

For British Columbia, according to the British Columbia Hazardous Waste Regulation (BC Reg. 63/88):

- PCB wastes are defined as: PCB liquid, PCB solid, and PCB equipment that have been taken out of service for the purpose of treatment, recycling, reuse, or disposal, or for the purpose of storage prior to treatment, recycling, reuse, or disposal
 - "PCB liquid" means any liquid containing more than 50 parts per million (ppm) by weight of PCB
 - "PCB solid" means any material or substance other than PCB liquid that contains or is contaminated with chlorobiphenyls at a concentration greater than 50 ppm by weight of chlorobiphenyls
 - "PCB Equipment" means any manufactured item that contains or is contaminated with a PCB liquid or PCB solid is PCB equipment. While items of PCB equipment are often electrical components such as transformers or capacitors, the definition includes other items such as contaminated drums and containers.
 - o NOTE: An item of equipment from which PCB liquid or PCB solid has been removed is still PCB equipment until it has been decontaminated by an approved protocol. This is because the removal is a treatment process and the equipment, until decontaminated, is a residue from the treatment

In British Columbia, PCB equipment becomes PCB wastes as soon as it is removed from service. This is the case even if the intent is to treat, recycle, or reuse the equipment.

When PCB wastes are stored in British Columbia, the full requirements of BC Reg. 63/88 apply to:

- 1.0 kg or more of pure PCB
- 100 L or more of any liquid containing more than 50 ppm of PCB
- 100 kg or more of any material other than a liquid, contaminated with more than 50 ppm of PCB

These amounts are the total of all amounts at a single location owned or controlled by the same person. They include PCB equipment. BC Reg. 63/88 also provides packaging requirements for storage, labeling requirements, and waste destruction requirements.



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The Federal Transportation of Dangerous Goods Regulation sets out the requirements for the proper transport of PCB waste across provincial boundaries.

In British Columbia, a manifest issued by the Ministry of Environment (or equivalent federal document) must be used for hazardous wastes shipped from sites in British Columbia. A manifest must be used to transport:

- 5 kg or more of PCB solids
- 5 L or more of PCB liquids
- An amount of a PCB solid or PCB liquid containing more than 500 g of PCB within BC
- 500 g or more of solids, liquids, or mixtures of these containing 50 mg/kg of PCB outside of BC

A.4 MOULD

Mould can be found everywhere in the outside environment—on plants, in soil and on dead and decaying matter (i.e., dead leaves). Mould requires two main conditions in order to grow—a source of food (a substrate typically comprised of cellulose) and water. Sources of food for mould are plentiful in outdoor and indoor environments; however, it is the presence of water in an indoor environment that will determine mould growth. The source of water can be a result of a water pipe leak or even excess condensation. Thus, the key to controlling mould indoors is to control the presence of water.

The removal of building materials impacted by mould growth may require workers with specific training and experience using work procedures that have been developed to protect workers and work areas from exposure to elevated concentrations of airborne mould.

A.4.1 Health Effects

There are a number of documented cases of health problems related to exposure to indoor fungi. Both high-level, short-term exposures and lower-level, long-term exposures can result in illness. The most common symptoms from exposure to mould in indoor environments are runny nose, eye irritation, cough, congestion, aggravation of asthma, headache, flu-like symptoms, fatigue, and skin rash. People with suppressed immune systems may be susceptible to fungal infections as a result of exposure to indoor moulds.

People who are exposed to mould growth on building materials will not necessarily exhibit adverse health effects. However, the mould must still be removed. Humans are at risk from indoor mould when fungal spores, fragments or metabolites are released into the air and inhaled or physically contacted (dermal exposure).

Not everyone experiences allergic reaction; the susceptibility to exposure varies with the individual's genetic predisposition, age, state of health, and concurrent exposures. For these reasons, and because the measurement of exposure is not standardized and biological markers of exposure to fungi are largely unknown, it is not possible to establish "safe" or "unsafe" levels of exposure. However, federal and provincial policies have been written to minimize mould exposure and the elimination of mould indoors.



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A.4.2 Susceptibility to Mould Exposure

People's reaction to mould exposure is quite varied, and although anyone can be affected, some people may be more susceptible and at greater risk, including:

- Infants and children
- Elderly
- Pregnant women
- Individuals with respiratory conditions or allergies and asthma
- Persons with weakened immune system (e.g., chemotherapy patients, organ or bone marrow transplant recipients, and people with HIV infections or autoimmune diseases)

People with specific health concerns should consult their doctor if concerned about mould exposure. Symptoms that may appear to stem from mould exposure may be due to other causes such as bacterial or viral infections or other allergies.

A.4.3 Regulatory Framework

At present, there are no specific laws or regulations governing acceptable levels of mould in buildings. The lack of specific regulatory standards is due in part to an inability to establish exposure-response relationships. Variation in individual susceptibility, limitations in sampling and analytical techniques, and the vast number of fungal agents and their products make it difficult to establish safe levels of exposure for all individuals. With a lack of defined exposure criteria, current Health Canada and other agency guidelines on the assessment and control of mould contamination in public buildings are largely based on prudent avoidance (i.e., remove any indoor growth or amplification site of mould, regardless of the concentration of moulds or their products in the indoor environment).

Although there are currently no regulations in Canada pertaining specifically to mould in buildings, occupational health and safety regulations typically require employers to take every precaution reasonable in the circumstances for the protection of workers. For example, BC Reg. 296/97 indicates the following:

- Section 4.79(1):
 - Employer must ensure that the indoor air quality is investigated when
 - a) complaints are reported
- Section 4.79(2):
 - Air quality investigation must include
 - c) sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints



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The WorkSafeBC Guideline for Part 4 of BC Reg. 296/97 discusses the application of the Regulation to workplaces with mould showing on exposed or hidden surfaces, or where mould may be a factor in complaints regarding indoor air quality. The guideline provides information for investigating indoor air quality complaints with respect to mould contamination, including information on sampling for the presence of moulds in buildings. Information is also provided on possible health effects and for cleanup personnel involved in the remediation of buildings damaged by water and mould.

Several additional guidelines and other resources describe procedures for the investigation and remediation of mould. The following documents indicate that mould observed in occupied building should be remediated in accordance with these procedures:

- Environmental Abatement Council of Ontario's (EACO) *Mould Abatement Guidelines*, 2010—Edition 2
- *Mould Guidelines for The Canadian Construction Industry*, Canadian Construction Association—82, 2004
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environment*, New York City Department of Health and Mental Hygiene, November 2008
- *Bioaerosols: Assessment and Control*, ACGIH 1999
- *Fungal Contamination in Public Buildings: Health Effects and Investigation Methods*, Federal-Provincial Committee on Environmental and Occupational Health 2004
- *Field Guide for the Determination of Biological Contaminants in Environmental Samples*, AIHA 1996
- *Clean-Up Procedures for Mould in Houses*, Canada Mortgage and Housing Corporation (CMHC) 2004

A.5 MERCURY

Mercury is commonly found in buildings as mercury vapour lighting, thermostats/thermometers with mercury-containing glass ampoules, electrical switches and can also be found in minor amounts in fluorescent lamp tubes and vapour bulbs and may be present in stable forms in adhesives. If mercury is exposed to the air, odourless vapours are formed.

A.5.1 Health Effects

Routes of exposure for mercury and mercury compounds include inhalation, ingestion, skin and/or eye contact. Mercury is hazardous if it is inhaled or absorbed through the skin, therefore exposure controls (including both respiratory protection and skin protection) are important to consider.

Elemental (metallic) mercury most often causes health effects through inhalation of its vapour, which can be absorbed through the lungs. This kind of exposure can result when elemental mercury is spilled (or products that contain elemental mercury break) and the mercury is exposed to the air.

Vapour concentrations can vary especially in warm or poorly-ventilated indoor spaces where the airborne concentration can exceed the permissible exposure limit (provincially set).



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Chronic mercury “poisoning” can be caused by long-term exposure to low airborne concentrations (or low levels) of mercury. Symptoms or effects of mercury exposure include: tremors, emotional changes (e.g., mood swings, nervousness, irritability, etc.), neuromuscular effects (e.g., muscular weakness, twitching), mental changes/disturbances, digestive disturbances, headaches, insomnia, and changes in nervous response.

Factors that determine the severity of the health effects from mercury exposure include the following:

- Chemical form of mercury (e.g., elemental, methylmercury, inorganic and organic)
- Dose
- Age of individual exposed
- Duration of exposure
- Route of exposure—as listed above
- Health of individual exposed

A.5.2 Regulatory Framework

In Canada, the Surface Coating Materials Regulations (SOR/2005-109) under the federal *Hazardous Products Act* provides a concentration of mercury that must not be exceeded in surface coatings that are presently sold in this country. This value was set at 10 ppm in 2005. However, it is important to note that there is not a direct correlation between the concentration of mercury in a material to the potential occupational exposure if the material is disturbed.

Exposure to mercury is regulated by the COHSR and BC Reg. 296/97. The regulated occupational exposure limit for airborne mercury according to both regulatory instruments is 0.025 mg/m³ (eight-hour TWA).

Mercury disposal should be through a scrap dealer (elemental mercury), recycling firm for mercury vapour and returned to the manufacturer for light tubes and fixtures. Disposal of mercury waste is governed by BC Reg. 63/88.

The Federal Transportation of Dangerous Goods Regulation and BC Reg. 63/88 set out the requirements for the proper transport of mercury waste in British Columbia.

A.6 OZONE-DEPLETING SUBSTANCES

Ozone-depleting substances (ODSs) are chemical agents known as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) used in various refrigeration equipment including air-conditioning, heat pump, refrigeration or freezer units. They have also been used in solvents, as aerosol additives in the production of foam insulation and in fire extinguishing equipment.



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A.6.1 Health Effects

Health effects are not typically related to exposure to ODSs directly, but to the consequences of ODS release to the atmosphere, subsequent degradation of the earth's ozone layer, and implications associated with increased UVB light exposure.

A.6.2 Regulatory Framework

ODSs are regulated in British Columbia by the British Columbia *Waste Management Act*—Ozone Depleting Substances and Other Halocarbons Regulation (BC Reg. 387/99 as amended by BC Reg. 109/2002).

On federal land, aboriginal land and federal works, buildings and undertakings, the Federal Halocarbon Regulation 2003 (SOR/2003-289, including associated amendments) applies. All other buildings and uses of refrigerants and other agents are under the Ozone-Depleting Substances Regulations 1998 (SOR/99-7), under CEPA. The regulations prohibit the release of halocarbons contained in refrigeration systems, air conditioning systems, fire extinguishers (except to fight a fire that is not a fire caused for training purposes) or containers or equipment used in the re-use, recycling, reclamation or storage of a halocarbon.

The regulations also impose restrictions on the servicing and dismantling, disposing of or decommissioning of any system containing halocarbons and requires the recovery of halocarbons into an appropriate container by a certified individual. The regulation also details an owner's record-keeping obligations.

If ODS-containing materials are to be removed and disposed of, all ODSs must be handled, recycled, stored, and/or disposed of in accordance with the requirements of BC Reg. 63/88.

The Federal Transportation of Dangerous Goods Regulation and BC Reg. 63/88 set out the requirements for the proper transport of ODS waste in British Columbia.

A.7 SILICA

Silica is a scientific name that refers to a mineral group made up of silicon and oxygen. It is the crystalline form of silica that is of concern when considering health effects. Crystalline silica occurs in several forms including quartz, cristobalite and tridymite. Silica's many uses include sand in golf courses and playgrounds, sandblasting abrasives, glass, ceramics, building materials (concrete, grout, bricks, blocks, asphalt, acoustical tiles, floor tiles, and plaster), electronic components.



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Dust containing respirable crystalline silica is produced during construction-related activities such as the following:

- Demolition
- Masonry, bricklaying and/or stone setting
- Rock drilling
- Repair and/or finishing of concrete materials
- Abrasive blasting
- Dry sweeping
- Quarrying and mining

A.7.1 Health Effects

Crystalline silica dust particles, which are small enough to be inhaled into the lungs (respirable size), can cause a number of health problems. As with asbestos, silica within building materials poses no threat to human health if left undisturbed.

Exposure to crystalline silica airborne dust may cause scarring of the lungs with coughing and shortness of breath—also known as “silicosis”, a form of disabling, progressive, and sometimes fatal pulmonary fibrosis.

A.7.2 Regulatory Framework

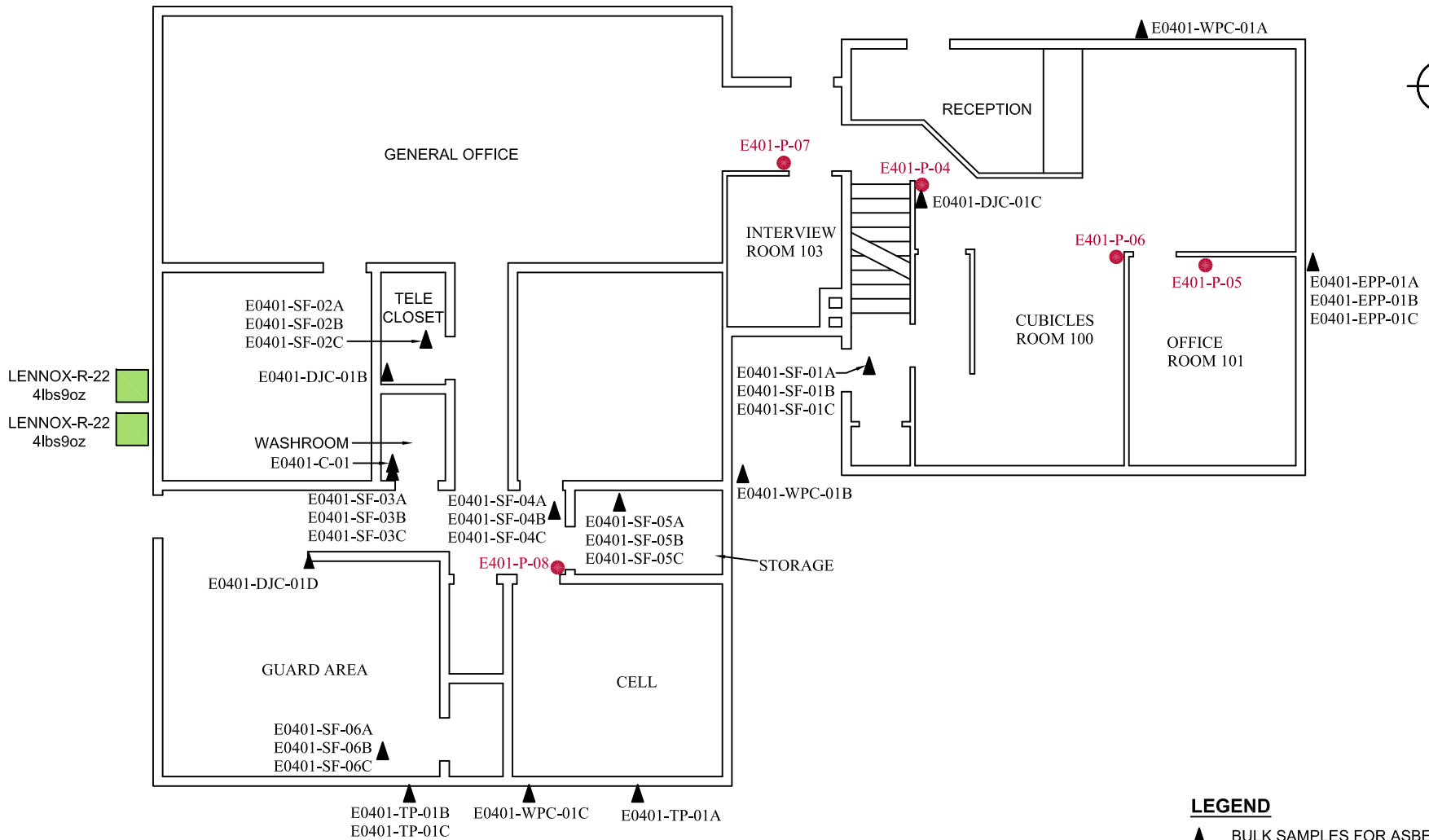
Regulations pertaining to silica are provided in BC Reg. 296/97. Included are general provisions (minimizing release; keeping worksite clear of unnecessary accumulations; ensuring methods for decontamination prevent generation of airborne silica), provisions for “restricted areas” (where there is a reasonable chance that the airborne concentration of silica exceeds or may exceed the occupational exposure limit), provisions for use in abrasive blasting, and provisions for health assessments for workers exposed to silica.

BC Reg. 296/97 and the COHSR also established the eight-hour OEL for silica to be 0.025 mg/m³ for each cristobalite and quartz.



APPENDIX B

Floor Plans



MAIN FLOOR

LEGEND

- ▲ BULK SAMPLES FOR ASBESTOS
- PAINT CHIP SAMPLES FOR LEAD
- ODS CONTAINING EQUIPMENT

- NOTES:** 1. WHITE DUCT TAPE ON SQUARE AND ROUND DUCTING POTENTIALLY CONCEALED THROUGHOUT IS ASBESTOS-CONTAINING.
 2. DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT IS ASBESTOS-CONTAINING.
 3. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

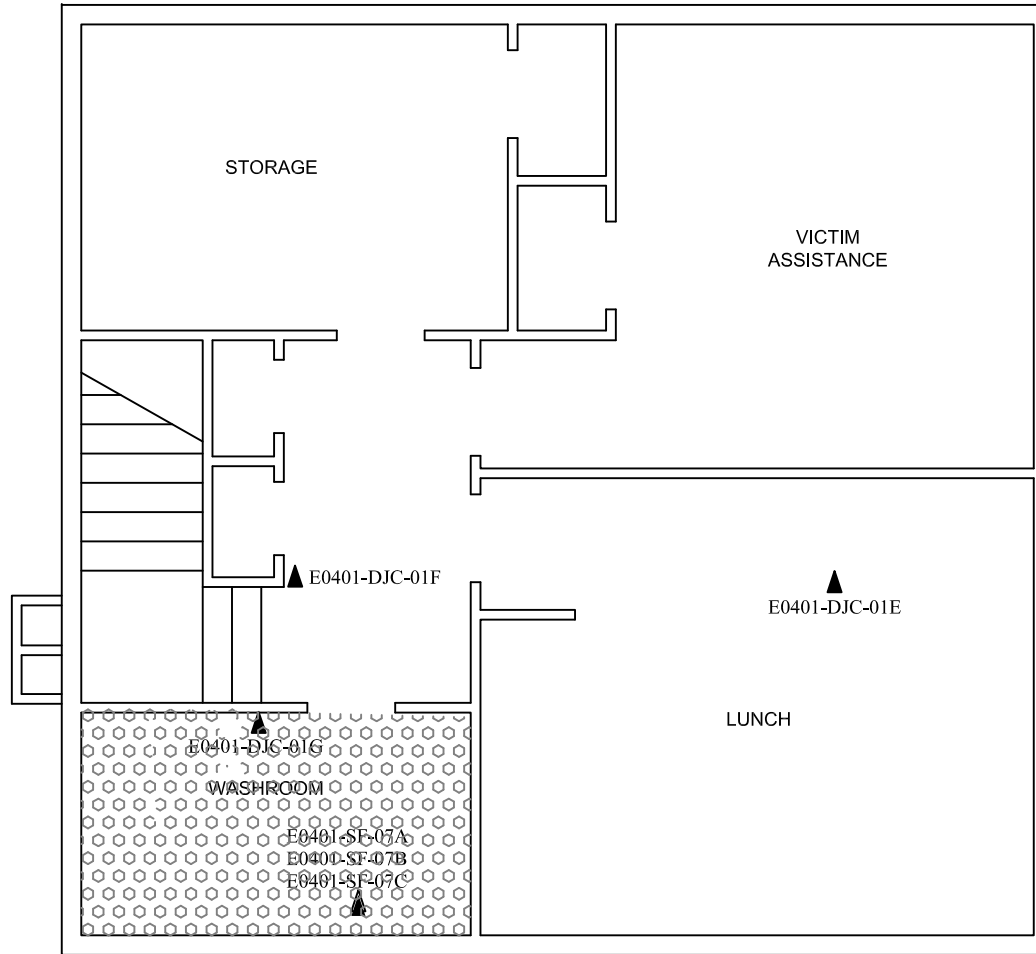
E0401 - PRINCETON RCMP DETACHMENT, 200 HIGHWAY 3, PRINCETON, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.:	123221396
Scale:	N.T.S.
Date:	19/12/19
Dwn. By:	CD VM SL2019120285
App'd By:	TW

Dwg. No.:	1
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SECOND FLOOR

LEGEND

- ▲ BULK SAMPLES FOR ASBESTOS
- CONCEALED ASBESTOS-CONTAINING SHEET FLOORING

- NOTES:**
1. WHITE DUCT TAPE ON SQUARE AND ROUND DUCTING POTENTIALLY CONCEALED THROUGHOUT IS ASBESTOS-CONTAINING.
 2. DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT IS ASBESTOS-CONTAINING.
 3. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

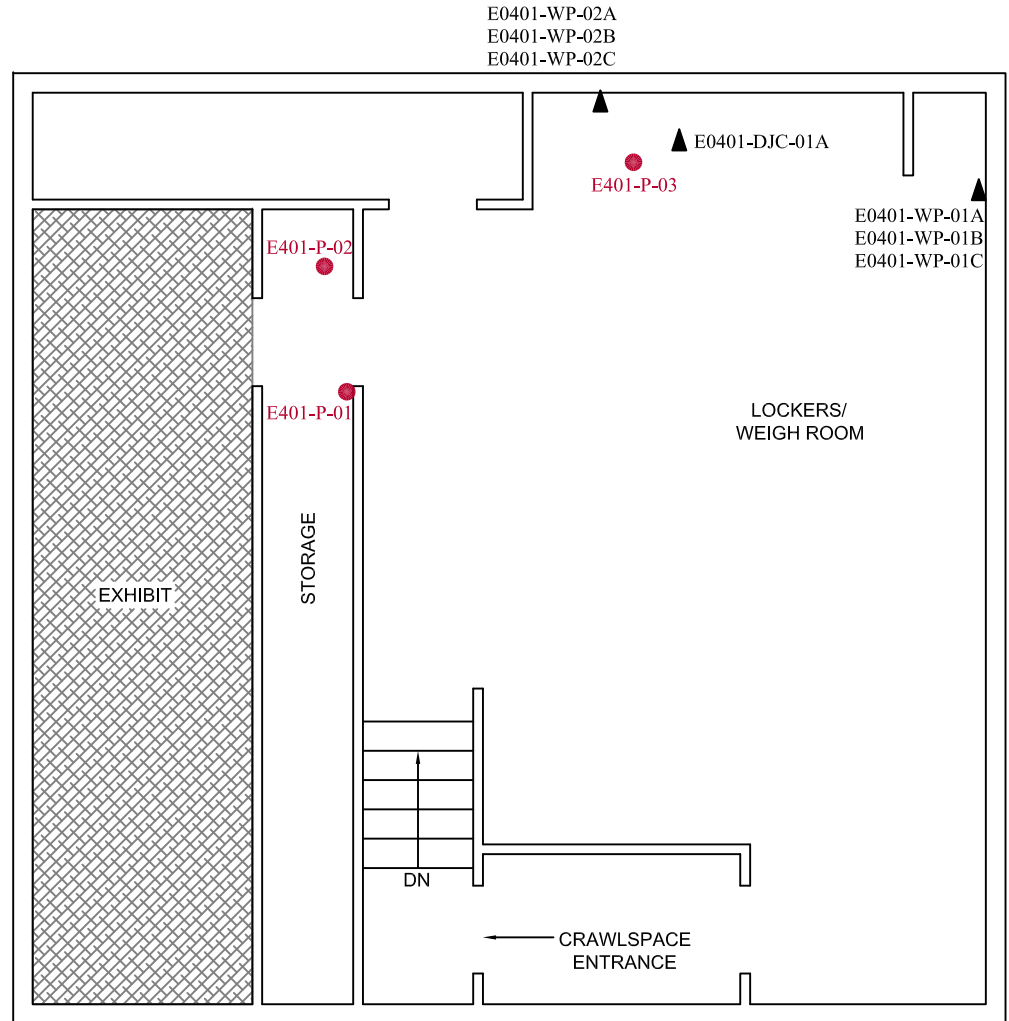
E0401 - PRINCETON RCMP DETACHMENT, 200 HIGHWAY 3, PRINCETON, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123221396
Scale: N.T.S.
Date: 19/12/19
Dwn. By: CD VM SL2019120286
App'd By: TW

Dwg. No.:
2





BASEMENT

- NOTES:** 1. WHITE DUCT TAPE ON SQUARE AND ROUND DUCTING POTENTIALLY CONCEALED THROUGHOUT IS ASBESTOS-CONTAINING.
 2. DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT IS ASBESTOS-CONTAINING.
 3. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

LEGEND

- ▲ BULK SAMPLES FOR ASBESTOS
- PAINT CHIP SAMPLES FOR LEAD
- ▨ NO ACCESS

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

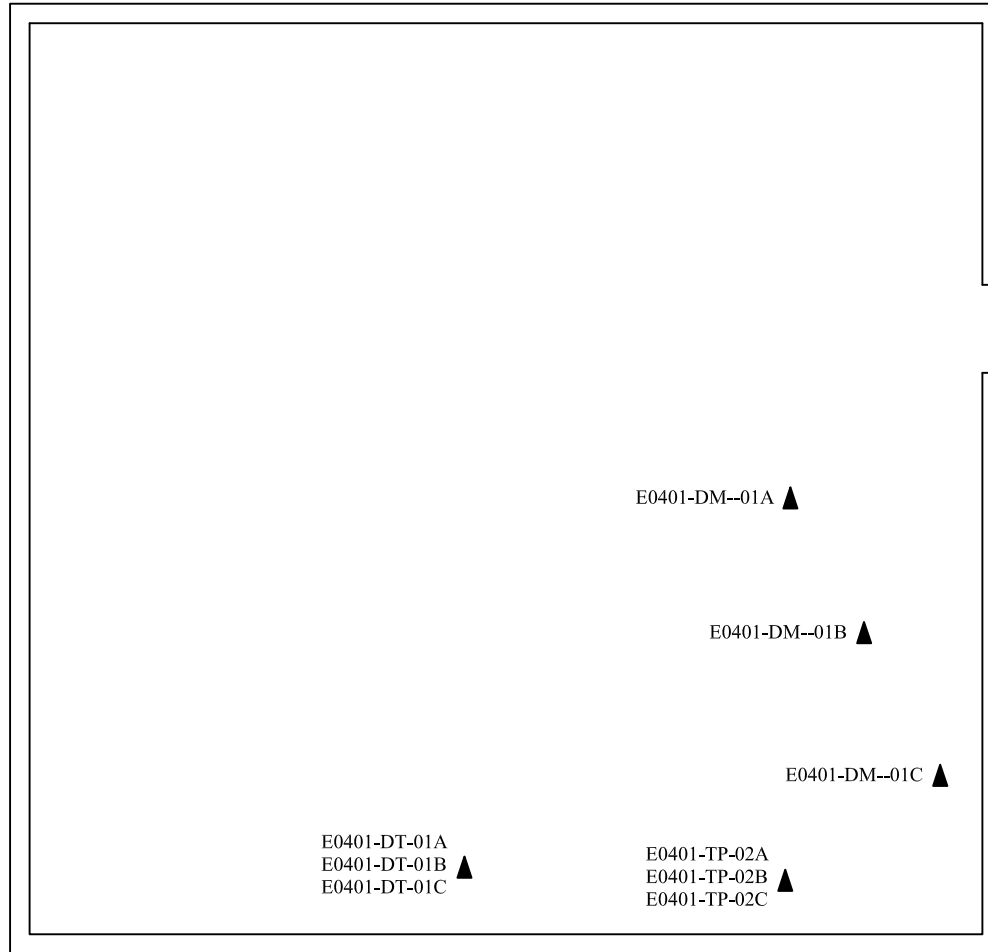
E0401 - PRINCETON RCMP DETACHMENT, 200 HIGHWAY 3, PRINCETON, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123221396
Scale: N.T.S.
Date: 19/12/20
Dwn. By: CD VM SL2019120302
App'd By: TW

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3





CRAWLSPACE

LEGEND

▲ BULK SAMPLES FOR ASBESTOS

NOTES: 1. WHITE DUCT TAPE ON SQUARE AND ROUND DUCTING IN THE CRAWLSPACE THROUGHOUT IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
 AND BULK SAMPLE LOCATIONS**

E0401 - PRINCETON RCMP DETACHMENT, 200 HIGHWAY 3, PRINCETON, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123221396
Scale: N.T.S.
Date: 19/12/19
Dwn. By: CD VM SL2019120288
App'd By: TW

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APPENDIX C

Summary of Results: Analysis of Bulk Samples for Asbestos

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix C Summary of Results: Analysis of Bulk Samples for Asbestos
March 17, 2020

Appendix C SUMMARY OF RESULTS: ANALYSIS OF BULK SAMPLES FOR ASBESTOS

**Table C-1 Suspected ACM Bulk Sample and Analytical Results Summary
E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

Material/Homogenous Application Description	Sample Number	Sample Location	Result (% Asbestos)
White duct tape on square ducting throughout	E0401-DT-01A	Crawlspace, ducting	64.1% Chrysotile
	E0401-DT-01B	Crawlspace, ducting	Positive Stop (Not Analyzed)
	E0401-DT-01C	Crawlspace, ducting	Positive Stop (Not Analyzed)
Grey duct mastic on round ducting throughout	E0401-DM-01A	Crawlspace, ducting	None Detected
	E0401-DM-01B	Crawlspace, ducting	None Detected
	E0401-DM-01C	Crawlspace, ducting	None Detected
Black tar paper beneath siding on exterior walls	E0401-TP-01A	Exterior, south wall	None Detected
	E0401-TP-01B	Exterior, south wall	None Detected
	E0401-TP-01C	Exterior, south wall	None Detected
Black tar paper on fiberglass in crawlspace	E0401-TP-02A	Crawlspace, walls	None Detected
	E0401-TP-02B	Crawlspace, walls	None Detected
	E0401-TP-02C	Crawlspace, walls	None Detected
Black tan and brown tree wall paper in basement	E0401-WP-01A	Basement, lockers/weight room, walls	None Detected
	E0401-WP-01B	Basement, lockers/weight room, walls	None Detected
	E0401-WP-01C	Basement, lockers/weight room, walls	None Detected
Smurf wall paper in basement	E0401-WP-02A	Basement, lockers/weight room, walls	None Detected
	E0401-WP-02B	Basement, lockers/weight room, walls	None Detected
	E0401-WP-02C	Basement, lockers/weight room, walls	None Detected
Grey window pane caulking throughout	E0401-WPC-01A	Exterior, windows	None Detected
	E0401-WPC-01B	Exterior, windows	None Detected
	E0401-WPC-01C	Exterior, windows	None Detected
Light grey electrical penetration putty on exterior penetrations	E0401-EPP-01A	Exterior, east wall	None Detected
	E0401-EPP-01B	Exterior, east wall	None Detected
	E0401-EPP-01C	Exterior, east wall	None Detected
	E0401-SF-01A	Main level, top of stairs	None Detected



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix C Summary of Results: Analysis of Bulk Samples for Asbestos
March 17, 2020

**Table C-1 Suspected ACM Bulk Sample and Analytical Results Summary
E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

Material/Homogenous Application Description	Sample Number	Sample Location	Result (% Asbestos)
Light blue/ white square pattern sheet flooring in the main level	E0401-SF-01B	Main level, top of stairs	None Detected
	E0401-SF-01C	Main level, top of stairs	None Detected
Cream with red and green dots sheet flooring in the main level	E0401-SF-02A	Main level, room 116, tele closet	None Detected
	E0401-SF-02B	Main level, room 116, tele closet	None Detected
	E0401-SF-02C	Main level, room 116, tele closet	None Detected
Grey and white smudged sheet flooring in the main level	E0401-SF-03A	Main level, room 115, washroom	None Detected
	E0401-SF-03B	Main level, room 115, washroom	None Detected
	E0401-SF-03C	Main level, room 115, washroom	None Detected
Light and dark blue spots sheet flooring in the main level	E0401-SF-04A	Main level, cell area	None Detected
	E0401-SF-04B	Main level, cell area	None Detected
	E0401-SF-04C	Main level, cell area	None Detected
Blue and grey lined sheet flooring in the main level	E0401-SF-05A	Main level, cell area, storage	None Detected
	E0401-SF-05B	Main level, cell area, storage	None Detected
	E0401-SF-05C	Main level, cell area, storage	None Detected
Blue sheet flooring	E0401-SF-06A	Main level, guard room	None Detected
	E0401-SF-06B	Main level, guard room	None Detected
	E0401-SF-06C	Main level, guard room	None Detected
Cream sheet flooring with speckles	E0401-SF-07A	Second floor, washroom	None Detected
	E0401-SF-07B	Second floor, washroom	None Detected
	E0401-SF-07C	Second floor, washroom	None Detected
White and black ceramic tile under grey and white smudged sheet flooring in the main level	E0401-C-01	Main level, room 115, washroom	None Detected



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix C Summary of Results: Analysis of Bulk Samples for Asbestos
March 17, 2020

**Table C-1 Suspected ACM Bulk Sample and Analytical Results Summary
E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

Material/Homogenous Application Description	Sample Number	Sample Location	Result (% Asbestos)
Drywall joint compound applied to walls and ceilings throughout	E0401-DJC-01A	Basement, bulkhead	1% Chrysotile
	E0401-DJC-01B	Main level, room 116, server room, wall	1% Chrysotile
	E0401-DJC-01C	Main level, bottom of stairs, wall	None Detected
	E0401-DJC-01D	Main level, guard room, wall	None Detected
	E0401-DJC-01E	Second floor, lunch room, bulkhead	None Detected
	E0401-DJC-01F	Second floor, hallway, wall	2% Chrysotile
	E0401-DJC-01G	Second floor, washroom, wall	None Detected
NOTES:			
1. Bold, highlighted text indicates confirmed ACM			
2. Discrepancies between sampled material or location descriptions between this table and the laboratory certificate—this table is to be considered correct			



APPENDIX D

**Laboratory Analytical Report—Asbestos: Polarized Light
Microscopy**



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EMSL Canada Order 691902904
 Customer ID: 55JACQ30L
 Customer PO: 123221396.300
 Project ID:

Attn: Kim Wiese Phone: (604) 412-3004
 Stantec Consulting Ltd. Fax:
 500 - 4730 Kingsway Collected:
 Burnaby, BC V5H 0C6 Received: 11/05/2019
 Analyzed: 11/13/2019

Proj: RCMP/EDIVHAZMAT/123221396.300 - PRINCETON DETACHMENT - 200 HIGHWAY 3, PRINCETON (E0401)

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-DT-01A **Lab Sample ID:** 691902904-0001

Sample Description: Crawspace, ducting/White duct tape on square ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	35.9%	64.1% Chrysotile	

Client Sample ID: E0401-DT-01B **Lab Sample ID:** 691902904-0002

Sample Description: Crawspace, ducting/White duct tape on square ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019				Positive Stop (Not Analyzed)	

Client Sample ID: E0401-DT-01C **Lab Sample ID:** 691902904-0003

Sample Description: Crawspace, ducting/White duct tape on square ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019				Positive Stop (Not Analyzed)	

Client Sample ID: E0401-DM-01A **Lab Sample ID:** 691902904-0004

Sample Description: Crawspace, ducting/Grey duct mastic on round ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	Gray	0.0%	100.0%	None Detected	Insufficient material for NOB analysis

Client Sample ID: E0401-DM-01B **Lab Sample ID:** 691902904-0005

Sample Description: Crawspace, ducting/Grey duct mastic on round ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-DM-01C **Lab Sample ID:** 691902904-0006

Sample Description: Crawspace, ducting/Grey duct mastic on round ducting

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-TP-01A **Lab Sample ID:** 691902904-0007

Sample Description: Exterior, north wall/Black tar paper beneath siding

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691902904
Customer ID: 55JACQ30L
Customer PO: 123221396.300
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-TP-01B **Lab Sample ID:** 691902904-0008

Sample Description: Exterior, north wall/Black tar paper beneath siding

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Black	0.0%	100%	None Detected	

Client Sample ID: E0401-TP-01C **Lab Sample ID:** 691902904-0009

Sample Description: Exterior, north wall/Black tar paper beneath siding

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Black	0.0%	100%	None Detected	

Client Sample ID: E0401-TP-02A **Lab Sample ID:** 691902904-0010

Sample Description: Crawlspace, walls/Black tar paper on fibreglass

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Black/Beige	0.0%	100%	None Detected	

Client Sample ID: E0401-TP-02B **Lab Sample ID:** 691902904-0011

Sample Description: Crawlspace, walls/Black tar paper on fibreglass

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Black/Beige	0.0%	100%	None Detected	

Client Sample ID: E0401-TP-02C **Lab Sample ID:** 691902904-0012

Sample Description: Crawlspace, walls/Black tar paper on fibreglass

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Black/Beige	0.0%	100%	None Detected	

Client Sample ID: E0401-WP-01A **Lab Sample ID:** 691902904-0013

Sample Description: Basement, lockers/weight room, walls/Black tan and brown tree wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	Tan	99.0%	1.0%	None Detected	

Client Sample ID: E0401-WP-01B **Lab Sample ID:** 691902904-0014

Sample Description: Basement, lockers/weight room, walls/Black tan and brown tree wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	Tan	99.0%	1.0%	None Detected	

Client Sample ID: E0401-WP-01C **Lab Sample ID:** 691902904-0015

Sample Description: Basement, lockers/weight room, walls/Black tan and brown tree wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	Tan	99.0%	1.0%	None Detected	



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 Customer ID: 55JACQ30L
 Customer PO: 123221396.300
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-WP-02A **Lab Sample ID:** 691902904-0016

Sample Description: Basement, lockers/weight room, walls/Smurf wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	White	99.0%	1.0%	None Detected	

Client Sample ID: E0401-WP-02B **Lab Sample ID:** 691902904-0017

Sample Description: Basement, lockers/weight room, walls/Smurf wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	White	99.0%	1.0%	None Detected	

Client Sample ID: E0401-WP-02C **Lab Sample ID:** 691902904-0018

Sample Description: Basement, lockers/weight room, walls/Smurf wall paper

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	White	99.0%	1.0%	None Detected	

Client Sample ID: E0401-WPC-01A **Lab Sample ID:** 691902904-0019

Sample Description: Exterior, windows/Grey window pane caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	White	0.0%	100%	None Detected	

Client Sample ID: E0401-WPC-01B **Lab Sample ID:** 691902904-0020

Sample Description: Exterior, windows/Grey window pane caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	White	0.0%	100%	None Detected	

Client Sample ID: E0401-WPC-01C **Lab Sample ID:** 691902904-0021

Sample Description: Exterior, windows/Grey window pane caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	Gray	0.0%	100.0%	None Detected	

Client Sample ID: E0401-EPP-01A **Lab Sample ID:** 691902904-0022

Sample Description: Exterior, west wall/Light grey electrical penetration putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-EPP-01B **Lab Sample ID:** 691902904-0023

Sample Description: Exterior, west wall/Light grey electrical penetration putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	



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Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-EPP-01C **Lab Sample ID:** 691902904-0024
Sample Description: Exterior, west wall/Light grey electrical penetration putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-01A **Lab Sample ID:** 691902904-0025
Sample Description: Main level, top of stairs/Light blue/ white square pattern sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-01B **Lab Sample ID:** 691902904-0026
Sample Description: Main level, top of stairs/Light blue/ white square pattern sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-01C **Lab Sample ID:** 691902904-0027
Sample Description: Main level, top of stairs/Light blue/ white square pattern sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-02A **Lab Sample ID:** 691902904-0028
Sample Description: Main level, room 116, server room/Cream with red and green dots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-02B **Lab Sample ID:** 691902904-0029
Sample Description: Main level, room 116, server room/Cream with red and green dots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-02C **Lab Sample ID:** 691902904-0030
Sample Description: Main level, room 116, server room/Cream with red and green dots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-03A **Lab Sample ID:** 691902904-0031
Sample Description: Main level, room 115, washroom/Grey and white smudged sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	



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Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-SF-03B **Lab Sample ID:** 691902904-0032

Sample Description: Main level, room 115, washroom/Grey and white smudged sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-03C **Lab Sample ID:** 691902904-0033

Sample Description: Main level, room 115, washroom/Grey and white smudged sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-04A **Lab Sample ID:** 691902904-0034

Sample Description: Main level, cell area/Light and dark blue spots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-04B **Lab Sample ID:** 691902904-0035

Sample Description: Main level, cell area/Light and dark blue spots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/12/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-04C **Lab Sample ID:** 691902904-0036

Sample Description: Main level, cell area/Light and dark blue spots sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-05A **Lab Sample ID:** 691902904-0037

Sample Description: Main level, cell area, storage/Blue and grey lined sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-05B **Lab Sample ID:** 691902904-0038

Sample Description: Main level, cell area, storage/Blue and grey lined sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Gray	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-05C **Lab Sample ID:** 691902904-0039

Sample Description: Main level, cell area, storage/Blue and grey lined sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691902904
 Customer ID: 55JACQ30L
 Customer PO: 123221396.300
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-SF-06A **Lab Sample ID:** 691902904-0040
Sample Description: Main level, guard room/Blue sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Blue	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-06B **Lab Sample ID:** 691902904-0041
Sample Description: Main level, guard room/Blue sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Blue	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-06C **Lab Sample ID:** 691902904-0042
Sample Description: Main level, guard room/Blue sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Blue	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-07A **Lab Sample ID:** 691902904-0043
Sample Description: Second floor, washroom/Cream sheet flooring with speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	White	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-07B **Lab Sample ID:** 691902904-0044
Sample Description: Second floor, washroom/Cream sheet flooring with speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	White	0.0%	100%	None Detected	

Client Sample ID: E0401-SF-07C **Lab Sample ID:** 691902904-0045
Sample Description: Second floor, washroom/Cream sheet flooring with speckles

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	White	0.0%	100%	None Detected	

Client Sample ID: E0401-C-01 **Lab Sample ID:** 691902904-0046
Sample Description: Main level, room 115, washroom/White and black ceramic tile under grey and white smudged sheet flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	11/13/2019	Gray/White/Beige	0.0%	100%	None Detected	

Client Sample ID: E0401-DJC-01A **Lab Sample ID:** 691902904-0047
Sample Description: Basement, bulkhead/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/06/2019	White	0.0%	99.0%	1% Chrysotile	



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Customer ID: 55JACQ30L
Customer PO: 123221396.300
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: E0401-DJC-01B **Lab Sample ID:** 691902904-0048

Sample Description: Main level, room 116, server room, wall/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	99.0%	1% Chrysotile	

Client Sample ID: E0401-DJC-01C **Lab Sample ID:** 691902904-0049

Sample Description: Main level, bottom of stairs, wall/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	100.0%	None Detected	Only paint submitted

Client Sample ID: E0401-DJC-01D **Lab Sample ID:** 691902904-0050

Sample Description: Main level, guard room, wall/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: E0401-DJC-01E **Lab Sample ID:** 691902904-0051

Sample Description: Second floor, lunch room, bulkhead/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	100.0%	None Detected	

Client Sample ID: E0401-DJC-01F **Lab Sample ID:** 691902904-0052

Sample Description: Second floor, hallway, wall/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	98.0%	2% Chrysotile	

Client Sample ID: E0401-DJC-01G **Lab Sample ID:** 691902904-0053

Sample Description: Second floor, washroom, wall/Drywall joint compound applied to walls and ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/13/2019	White	0.0%	100.0%	None Detected	Only paint submitted



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EMSL Canada Order 691902904
Customer ID: 55JACQ30L
Customer PO: 123221396.300
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Dane Sorochuk PLM (9)
PLM Grav. Reduction (35)
Nicole Yeo PLM (6)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency or the U.S. Government

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 11/13/2019 14:59:35

APPENDIX E



Summary of Identified Asbestos-Containing Materials

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix E Summary of Identified Asbestos-Containing Materials
 March 17, 2020

Appendix E SUMMARY OF IDENTIFIED ASBESTOS-CONTAINING MATERIALS

**Table E-1 Summary of Identified Asbestos-Containing Materials
 E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

Identified ACM Description and Condition Information	
White duct tape on square and round ducting (only observed to be present in the crawlspace and potentially present in other concealed areas).	
% Type	64.1% Chrysotile (Current Assessment) 80% Chrysotile (Previous Report)
Friability	Friable
Condition	Good
Accessibility	Access (C) Concealed
Action	ACTION 7 (Routine Surveillance)
Approx. Quantity	5 linear metres
	
Drywall joint compound applied to drywall walls and ceilings throughout.	
% Type	1-2% Chrysotile (Current Assessment) 2-4% Chrysotile (Previous Report)
Friability	Non-friable in situ; potentially friable during removal
Condition	Good
Accessibility	Access (A)
Action	ACTION 7 (Routine Surveillance)
Approx. Quantity	220 square metres
	
Yellow pattern vinyl sheet flooring (presumed to remain present and in good condition as the second layer) in the second floor washroom.	
% Type	40% Chrysotile (Previous Report)
Friability	Non-friable in situ; friable during removal
Condition	Good
Accessibility	Access (C) Concealed
Action	ACTION 7 (Routine Surveillance)
Approx. Quantity	20 square metres
<p>No photo (concealed layer).</p>	



APPENDIX F

**Summary of Results: Analysis of Paint Chip Samples for
Lead**

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix F Summary of Results: Analysis of Paint Chip Samples for Lead
March 17, 2020

Appendix F SUMMARY OF RESULTS: ANALYSIS OF PAINT CHIP SAMPLES FOR LEAD

**Table F-1 Suspected Lead-Containing Paint Sample and Analytical Results Summary
E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

Sample Number	Paint Colour/Application	Sample Location	Result (ppm)
E0401-P-01	Light blue on wood doors and frames	Basement, storage, door	3,600
E0401-P-02	Light blue/grey on concrete floor	Basement, storage, floor	450
E0401-P-03	White on drywall ceilings	Basement, lockers/weight room, ceilings	<82
E0401-P-04	Off-white on drywall walls	Main floor, base of stair, walls	<82
E0401-P-05	Blue on drywall walls	Main floor, room 101, office, wall	<110
E0401-P-06	Red on drywall walls	Main floor, room 100, cubicle space, wall	<80
E0401-P-07	Grey on metal doors and frames	Main floor, room 103, interview room, door	<92
E0401-P-08	Light yellow on metal cell doors and concrete walls	Main floor, cell, door	<750

NOTE:
Bold, highlighted text indicates confirmed or potential LCP



APPENDIX G

Laboratory Analytical Report—Lead: Paint Chip Analysis

**EMSL Canada Inc.**

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ProjectID:	

Attn: **Kim Wiese**
Stantec Consulting Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 11/06/19 11:40 AM
 Collected:

Project: **RCMP/EDivHazmat123221396.300****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
E0401-P-01 551913490-0013		11/9/2019	0.2213 g	90 ppm	3600 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Basement, storage, door Desc: Light blue on wood doors and frames					
E0401-P-02 551913490-0014		11/9/2019	0.2469 g	81 ppm	450 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Basement, storage, floor Desc: Light blue/grey on concrete floor					
E0401-P-03 551913490-0015		11/9/2019	0.2452 g	82 ppm	<82 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Basement, lockers/weight room, ceilings Desc: White on drywall ceilings					
E0401-P-04 551913490-0016		11/9/2019	0.2430 g	82 ppm	<82 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Main floor, base of stair, walls Desc: Off-white on drywall walls					
E0401-P-05 551913490-0017		11/9/2019	0.1766 g	110 ppm	<110 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Main floor, room 101, office, wall Desc: Blue on drywall walls Insufficient sample to reach reporting limit.					
E0401-P-06 551913490-0018		11/9/2019	0.2505 g	80 ppm	<80 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Main floor, room 100, cubicle space, wall Desc: Red on drywall walls					
E0401-P-07 551913490-0019		11/9/2019	0.2179 g	92 ppm	<92 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Main floor, room 103, interview room, door Desc: Grey on metal doors and frames Insufficient sample to reach reporting limit.					

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Cert #2845.08; AIHA-LAP, LLC - ELLAP #196142

Report Amended: 11/13/2019 10:33:30 Replaces the Initial Report 11/13/2019 10:30:47. Reason Code: DataEntry-Other (see report comment)



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Attn: **Kim Wiese**
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Phone: (604) 412-3004
 Fax:
 Received: 11/06/19 11:40 AM
 Collected:

Project: **RCMP/EDivHazmat123221396.300**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Weight</i>	<i>RDL</i>	<i>Lead Concentration</i>
E0401-P-08 551913490-0020		11/8/2019	0.0265 g	750 ppm	<750 ppm
Site: Princeton Detachment - 200 Highway 3, Princeton Main floor, cell, door Desc: Light yellow on metal cell doors and concrete walls Insufficient sample to reach reporting limit.					

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Cert #2845.08; AIHA-LAP, LLC - ELLAP #196142

Report Amended: 11/13/2019 10:33:30 Replaces the Initial Report 11/13/2019 10:30:47. Reason Code: DataEntry-Other (see report comment)

APPENDIX H



Summary of Identified LCPS

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix H Summary of Identified LCPs
 March 17, 2020

Appendix H SUMMARY OF IDENTIFIED LCPS

**Table H-1 Summary of Identified LCPs
 E0401—RCMP Detachment, 200 Highway 3, Princeton BC**

LCP Description		Photo
Paint colour	Light blue (grey in Previous Report)	
Substrate	Wood	
Location/approx. extent	Doors and frames	
Lead content	3,600 ppm (Current Assessment) 1,800 ppm (Previous Report)	
Condition	Good	
Paint colour	Light yellow	
Substrate	Metal and concrete	
Location/approx. extent	Cell doors and walls	
Lead content	<750 ppm (insufficient sample to reach reporting limit, further sampling may determine that this is not in fact an LCP)	
Condition	Good	

